

JMC Engineering Inc.

DEVELOPING SUSTAINABLE ENGINEERING SOLUTIONS

December 28, 2021

CRESCENT BEACH CONDOMINIUM ASSOCIATION, INC.
100 North Collier Boulevard
Marco Island, FL 34145

Attention: Sheelah Yawitz, Board President
Office: 314.518.4306
Email: SheelahY@Yahoo.com

Reference: STRUCTURAL CONDITION ASSESMENT
Engineering Consulting Services
Crescent Beach Condominium Association, Inc.
100 North Collier Boulevard
Marco Island, FL 34145
JMC Project Number: 123CBC.01

JMC Engineering, Inc. (JMC) recently performed a structural condition assessment at Crescent Beach Condominium as outlined in the proposal dated November 5, 2021, and approved by Sheelah Yawitz, board president on November 9, 2021. Our scope included a review of available documentation, interviews with site personnel, and a site walkthrough with observations. JMC accessed 18 residential units as part of the assessment. This report contains our observations, conclusions, and recommendations for your consideration.

Definitions:

Assessment – Systematic collection and analysis of data, evaluation, and recommendations regarding an existing building or portion thereof.

Observation – The visual survey of items, systems, conditions, or components that are readily accessible and easily visible during a walk-through survey of the subject property.

Condition, Good – In working condition and does not require immediate or short-term repairs.

Condition, Fair – In working condition but may require immediate or short-term repairs.

Condition, Poor – Not in working condition or requires immediate or short-term repairs

Dangerous – Any building, structure, or portion thereof that meets any of the conditions described below shall be deemed dangerous:

- The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground.
- There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads (Section 202 of the 2020 FBC, Existing Building, 7th edition).

Description of the Building

General: Crescent Beach Condominium is a fourteen story multi-family condominium (no thirteenth floor) located between the Gulf of Mexico and Collier Boulevard. According to the Collier County Property Appraiser, the subject property was built in 1990 and has 117 residential units. The building is a cast-in-place reinforced concrete column and shear wall frame structure with cast-in-place reinforced concrete floor slabs that are seven and half inches thick. The exterior walls are concrete and concrete masonry clad with direct-applied textured and painted stucco finish. The ground floor has aluminum-framed storefront windows and automatic aluminum sliding doors.

Units: The residential unit balconies are cast-in-place reinforced concrete slabs. A concrete knee wall is located along the edge of the balconies' perimeter and has either an aluminum guardrail or an aluminum screen enclosure on top of the knee wall. Aluminum-framed fixed and horizontal roller windows are installed in the openings of the units, and aluminum-framed sliding glass doors are installed in the opening leading from the unit onto the balcony. Some of the windows and sliding glass doors have been replaced, but the original windows and sliding glass doors are not impact-resistant which classifies the building as Partially Enclosed in accordance with ASCE 7-16 and the Florida Building Code. Please refer to the Discussion Section for more information.

Roof: The roof on the subject tower is a low-slope TPO membrane roof with standing seam metal panel mansard roof over a portion of the TPO roof. The elevator and stair penthouses and cooling tower are also located on the roof level. The Association informed and provided documentation to JMC that the low slope roof was replaced approximately six (6) months ago.

Garage: The subject building has two (2) standalone one-story parking garages. The structures are precast double-T beam deck supported by reinforced cast-in-

place concrete columns and beams. The Association informed and provided documentation to JMC that the low slope roof for the north garage was replaced last year (2020) and the low slope roof/tennis court/pickleball court for the south garage is scheduled to be resurfaced January of 2022.

Pool: The pool area is located on the south side of the subject property. The pool is an in-ground pool with pavers on grade and a trench drainage system. A freestanding masonry pool equipment room is in the pool area. The whole area is enclosed with aluminum railing.

Awning: Steel-framed awning structures are located at the north and south ends of the building, between the building and the parking garages. The Association informed JMC that the steel posts are scheduled to be cleaned of any rust, engineered supplemental supports will be added and the steel framing will be replaced in January 2022.

Observations

Engineering personnel from JMC visited the subject site on November 16 and 17, 2021, to perform a structural condition assessment of the current condition of the subject property. The following are observations during the site visits:

Units:

- Unit 208 crack in northeast knee wall (Photo 1).
- Unit 308 crack in north knee wall and column (Photo 2).
- Unit 308 crack in west column (Photo 3).
- Unit 604 spalled concrete (Photo 4).
- Unit 608 crack in northeast knee wall (Photo 5).
- Unit 608 exposed rust spot on north knee wall (Photo 6).
- Unit 608 rusted fasteners from old shutters (Photo 7).
- Unit 702 typical hairline cracks on knee wall (Photo 8).
- Unit 801 blister in waterproofing in south corner (Photo 9).
- Unit 800 crack in south knee wall (Photo 10).
- Unit 800 crack in west knee wall (Photo 11).

- Unit 908 crack in northwest knee wall (Photo 12).
- Unit 908 damage to west column (Photo 13).
- Unit 908 typical damage to coating on the knee wall (Photo 14).
- Unit 908 typical damage to coating on the knee wall (Photo 15).
- Unit 1007 master bedroom window (Photo 16).
- Unit 1007 master bedroom window frame separation on the right-hand side (Photo 17).
- Unit 1007 master bedroom window frame separation on the left-hand side (Photo 18).
- Unit 1007 master bedroom window evidence of the frame being separated from the anchor (Photo 19).
- Unit 1208 damaged aluminum screen enclosure (Photos 20).
- Unit 1208 crack in north knee wall (Photo 21).
- TH-2 crack in the concrete below the sliding glass door on the 2nd floor (Photo 22).
- PH-8 evidence of poor drainage (Photo 23).
- PH-8 damage to the waterproofing (Photos 24).

Building:

- Typical loose debris on the roof (Photos 25 through 26).
- Typical unpainted stucco repair on the roof (Photos 27 through 28).
- Evidence of ponding water on the roof (Photo 29).
- Paint blisters on the walls above roof level (Photos 30 through 31).
- Cracked stucco on the elevator tower on the roof (Photo 32).
- Typical hairline cracks on the knee walls on the exterior walkways in front of units 905, 703, 705, 706, 606, 605, 505, 206, 205, and 203 (Photos 33 through 34).

- Typical hairline cracks in the stucco on the exterior walkways in front of units PH, 1003, and 1002 (Photo 35).
- Damaged stucco on column at the south end on PH level on the exterior walkway (Photo 36).
- Damaged stucco in front of unit 703 on the exterior walkways (Photo 37).
- Potential concrete damage in front of unit 605 on the exterior walkway (Photo 38).
- Peeling paint on knee wall on balcony near elevators on the exterior walkways (Photo 39).
- Potential concrete damage in front of unit 206 on the exterior walkways (Photo 40).
- Stairstep crack on the roof level in the south stairwell (Photo 41).
- Potential concrete damage on the column between the 10th and 11th floor in the north stairwell (Photo 42).
- Typical base posts are rusted on the awnings located on the front of the building (Photos 43 and 44).
- Crack in stucco at west entrance of the north garage (Photo 45).
- Damaged stucco near west entrance of the north garage (Photo 46).
- Evidence of efflorescence on the wall near the west entrance of the north garage (Photo 47).
- Evidence of peeling paint on the wall near the west entrance of the north garage (Photo 48).
- Evidence of ponding water roof of the north garage (Photo 49).
- Peeling paint near the west entrance of the south garage (Photo 50).
- Blister full of water on the southeast corner of the south garage (Photo 51).
- Blisters in paint on the south end of the south garage (Photos 52 and 53).
- Blisters in paint near west entrance of the south garage (Photo 54).
- Peeling paint on the east end of the south garage (Photo 55).

- Hole in the stucco near the east entrance of the south garage (Photo 56).
- Blisters in the paint near the east entrance of the south garage (Photos 57 through 58).
- Blisters in paint on the southeast corner of the south garage (Photo 59).
- Potential damaged concrete at base of the column outside common area entrance on rear end of the tower (Photo 60).
- Peeling paint on column on the front of the tower (Photos 61 through 63).
- Blister in paint on column on the front of the tower (Photos 64 and 65).
- Peeling paint on trim band on the front of the tower (Photos 66).

Representative Photographs

The following are representative photographs of our observations on the dates of our site visits (following page):



Photo #1 – Unit 208 crack in northeast knee wall.



Photo #2 – Unit 308 crack in north knee wall and column.



Photo #3 – Unit 308 crack in west column.



Photo #4 – Unit 604 spalled concrete.



Photo #5 – Unit 608 crack in northeast knee wall.



Photo #6 – Unit 608 exposed rust spot on north knee wall.



Photo #7 – Unit 608 rusted fasteners from old shutters.

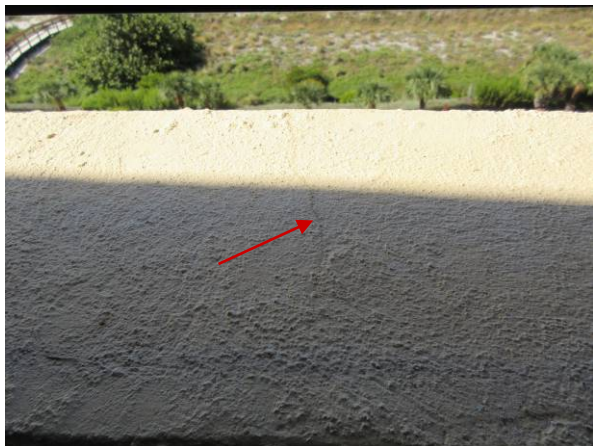


Photo #8 – Unit 702 typical hairline cracks on knee wall.



Photo #9 – Unit 801 blister in waterproofing in south corner



Photo #10 – Unit 800 crack in south knee wall.



Photo #11 – Unit 800 crack in west knee wall.



Photo #12 – Unit 908 crack in northwest knee wall



Photo #13 – Unit 908 damage to west column.



Photo #14 – Unit 908 typical damage to coating on the knee wall.



Photo #15 – Unit 908 typical damage to coating on the knee wall.



Photo #16 – Unit 1007 master bedroom window.



Photo #17 – Unit 1007 master bedroom window frame separation on the right-hand side.



Photo #18 – Unit 1007 master bedroom window frame separation on the left-hand side.

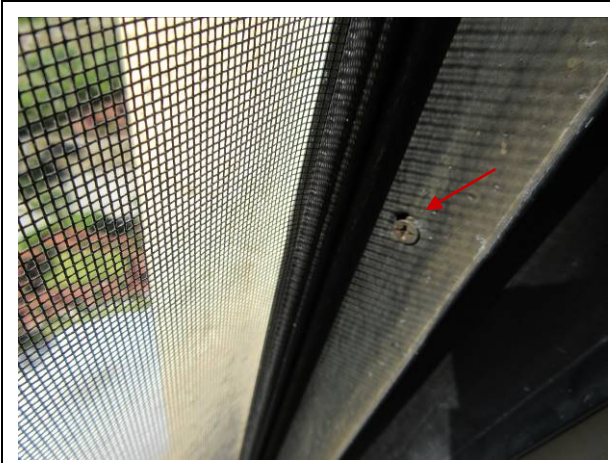


Photo #19 – Unit 1007 master bedroom window evidence of the frame being separated from the anchor.



Photo #20 – Unit 1208 damaged aluminum screen enclosure.



Photo #21 – Unit 1208 crack in north knee wall.



Photo #22 – TH-2 crack in the concrete below the sliding glass door on the 2nd floor.



Photo #23 – PH-8 evidence of poor drainage.



Photo #24 – PH-8 damage to the waterproofing.



Photo #25 – Roof – typical loose debris.



Photo #26 – Roof – typical loose debris.



Photo #27 – Roof – typical unpainted stucco repair.



Photo #28 – Roof – typical unpainted stucco repair.



Photo #29 – Roof – Evidence of ponding water.



Photo #30 – Roof – blister in paint.



Photo #31 – Roof – blister in paint.



Photo #32 – Roof – cracked stucco on the elevator tower.



Photo #33 – Exterior walkways – typical hairline cracks on the knee walls.



Photo #34 – Exterior walkways – typical hairline cracks on the knee walls.



Photo #35 – Exterior walkways – typical hairline cracks in the stucco.



Photo #36 – Exterior walkways – damaged stucco on column south end on PH level.



Photo #37 – Exterior walkways – damaged stucco in front of unit 703.



Photo #38 – Exterior walkways – potential concrete damage in front of unit 605.



Photo #39 – Exterior Walkways – peeling paint on knee wall on balcony near elevators.



Photo #40 – Exterior walkways – potential concrete damage in front of unit 206.



Photo #41 – South stairwell – stairstep crack on the roof level.



Photo #42 – North stairwell – potential concrete damage on the column between the 10th and 11th floor.



Photo #43 – Front awnings – typical base posts are rusted.



Photo #44 – Front awnings – typical base posts are rusted.



Photo #45 – North garage – crack in stucco at west entrance.



Photo #46 – North garage – damaged stucco near west entrance



Photo #47 – North garage – evidence of efflorescence on the wall near the west entrance.



Photo #48 – North garage - evidence of peeling paint on the wall near the west entrance.



Photo #49 – North garage – evidence of ponding water.



Photo #50 – South garage – peeling paint near the west entrance.



Photo #51 – South garage – blister full of water on the southeast corner.



Photo #52 – South garage – blisters in paint on the south end.



Photo #53 – South garage – blisters in paint on the south end.



Photo #54 – South garage – blisters in paint near west entrance.



Photo #55 – South garage – peeling paint on the east end.



Photo #56 – South garage – hole in the stucco near the east entrance.



Photo #57 – South garage – blisters in the paint near the east entrance.



Photo #58 – South garage – blisters in the paint near the east entrance.



Photo #59 – South garage – blisters in paint on the southeast corner.



Photo #60 – Rear of tower – potential damaged concrete at base of the column outside common area entrance.



Photo #61 – Front of tower – peeling paint on column.



Photo #62 – Front of tower – peeling paint on column.



Photo #63 – Front of tower – peeling paint on pillar.



Photo #64 – Front of tower – blister in paint on pillar.



Photo #65 – Front of tower – blister in paint on pillar.



Photo #66 – Front of tower – peeling paint on trim band.

Discussion and Conclusions

Based on the information gathered from our document review, our interviews with site personnel and our site observations, JMC's opinion is that the overall structural condition is good to fair (as defined in the Definition section on pages 1 and 2), and the building is safe for continued use under the present occupancy. However, conditions exist that may pose a risk to the future structural integrity of the building or to the health and safety of its occupants in the future if not addressed.

Concrete deterioration is caused by a variety of reasons, but the most common cause in the South Florida coastal environment is corrosion of the reinforcing steel. The rust formed by the corrosion process expands up to five times the steel's original volume, creating cracks, delamination and spalling in the concrete. The primary cause of corrosion is exposure to chloride ions, which are present in the local environment. Over time, chlorides dissolved in water can permeate through sound concrete or reach the steel through cracks.

Cementitious materials such as stucco and concrete will crack; cracks in the stucco and exposed concrete surfaces are caused by a variety of reasons, including corrosion as noted above, shrinkage, building movement, thermal movement, stress and more. Unless the crack is caused by an underlying structural issue such as reinforcement corrosion or overloading, the crack should be treated and sealed. Cracks that increase in width should be brought to the attention of a structural engineer.

Protection of the reinforcing steel in concrete from chloride attack in a coastal environment is typically provided by applying and maintaining coatings and sealants on the exposed vertical and horizontal structural concrete surfaces. Exterior wall coatings have an estimated useful life of 7 years, waterproof traffic coatings have an estimated useful life of 10 years, and sealants have an estimated useful life of 10-20 years, depending on type and quality of installation. Blisters, peeling paint, and stucco cracks translating through the paint are indications that the coatings are at or near the end of its life.

The property is in the hurricane-prone region and the wind-borne debris region. Loose materials and debris on the roof and property will become wind-borne during a high wind event and can cause impact damage to the property or its neighbors.

Separation between the window frame and interior finishes and separation between the window frame and its anchors, such as observed in unit 1007, can be an indication of damage caused by overloading during a previous high wind event. Assemblies that have been damaged by overloading are less likely to survive another high wind event.

A building with openings that are not protected by either shutters or impact rated glass in the Wind-Borne Debris Region is classified as Partially Enclosed. Windows and doors

that are not protected by shutters or impact rated glass will be more likely to fail during a high wind event, leading to internal pressurization of the building.

Ponding water on roofs can lead to dirt accumulation and vegetation growth, algae growth, premature failure of the roof system, and in extreme cases, structural overload.

These conditions should be addressed as prescribed in the Recommendations section below.

Recommendations

Based on our observations and conclusions above, JMC recommends:

- Performing a comprehensive exterior concrete restoration on the indicated areas within the next 6 months as included stucco and concrete repairs at areas noted in this report and discovered during the pre-project survey.
- The exterior paint, waterproofing and sealants should be addressed as indicated on a 7-year cycle. From our understanding, the Association has had their last paint cycle in 2016 and should anticipate their next paint cycle in 2023.
- Securing or removing all the loose material or debris from the roof immediately to reduce the risk of creating wind-borne missiles during a high wind event.
- Inspecting the roof regularly. Inspections should be performed twice a year and after storm events at a minimum. Periodically clean the roof of accumulated dirt and algae growth with methods acceptable to the membrane manufacturer.
- Replacing wind and door assemblies that show indications of previous storm damage, such as the window in unit 1007.
- Replacing non-impacted rated windows and doors with impact rated assemblies so that the classification of the building can be enclosed instead of partially enclosed. Providing protection of openings improves the resiliency of the building and significantly reduces the potential for damage during a high wind event.
- Engaging a professional engineering firm such as JMC to develop scope, prepare construction documents, procure bids from qualified contractors, and administer the construction contract between the association and the successful bidder.

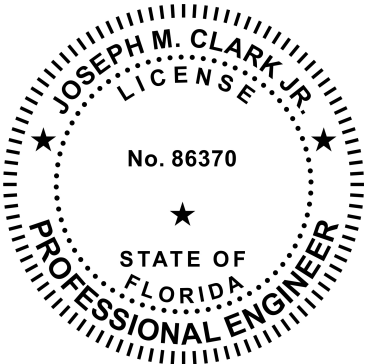
Limitations

- This report has been prepared exclusively for Crescent Beach Condominium Association, Inc., and its authorized representatives. No other person or entity may rely upon this report without written authorization from JMC.
- The standard of care and skill for the services provided by JMC is consistent with the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. JMC makes no warranties, express or implied, in connection with any services provided by JMC.
- This assessment is limited to the building exterior and structural elements that were readily accessible and visible at the time of our site visit. Any areas of the facility that were concealed, inaccessible or not readily visible at the time of the site visit are not included. A structural assessment cannot eliminate the uncertainty regarding the presence of physical deficiencies in the structural elements and nothing in this report should be construed directly or indirectly as a guarantee for any portion of the structure. Unless explicitly stated in this report, extrapolations should not be made from the observations or opinions provided in this report.
- Structural analysis, investigation (destructive or otherwise), and testing were not performed and are beyond this scope of service.
- The conclusions and recommendations offered in this report are based in part upon information gathered from the documents reviewed and interviews performed. While reasonable efforts were made to verify the existing conditions as reported, verifying the veracity of this information is beyond this scope of service.
- The conclusions and recommendations offered in this report are based on information gathered from the documents reviewed, interviews performed, and site observations. JMC should be allowed to review any additional information that is discovered after the issuance of this report and determine if the original conclusions and recommendations should be revised.
- The conclusions and recommendations offered in this report may be relied upon for a period of 6 months. This report is not a guarantee against structural failure during unusual or extreme loading conditions experienced during events such as hurricanes, floods, vehicular impacts, or similar.

Closing

To the best of our knowledge and ability, this report represents an accurate appraisal of the present condition of the building based upon the evaluation of the observed conditions, to the extent reasonably possible. We appreciate the opportunity to provide these services and trust that this report will be informative. Should you have any questions regarding our report, please do not hesitate to contact us.

Respectfully,
JMC Engineering, Inc.
Registry #33538



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