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## Report of Findings

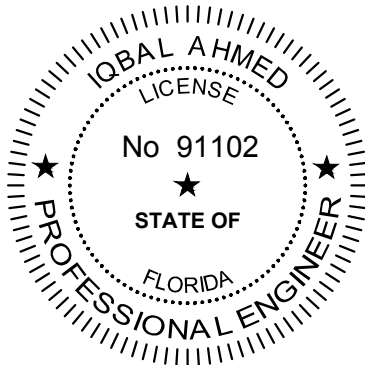
### Structural Milestone Inspection *Phase II*

Duchess Condominium  
Owners Association, Inc.  
220 South Collier Boulevard  
Marco Island, FL

Rimkus Matter No: 100231470

Prepared For:  
Duchess Condominium  
Owners Association, Inc.  
220 South Collier Boulevard  
Marco Island, FL 34145

Attention:  
Mr. Arnold Goldman



This item has been digitally signed and sealed by  
Iqbal Ahmed, PE.

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considered signed and sealed and the signature  
must be verified on any electronic copies.

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Iqbal Ahmed, P.E.  
Engineering Number: 91102  
Principal Consultant

This item has been digitally signed and sealed by Iqbal Ahmed, P.E., on the date adjacent to the seal.  
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## Section I

### GENERAL INFORMATION/SCOPE OF SERVICE

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#### General Information

Rimkus was retained to conduct a Structural Milestone Inspection (SMI). This summary and report have been prepared in compliance with the state-mandated inspection requirements for conducting an SMI as outlined in the Florida Senate Bill 4D Building Safety Act, Senate Bill 154, and Florida Statute Section 553.899.

This report was prepared for the exclusive use of Duchess Condominium Owners Association, Inc. and was not intended for any other purpose. Our report was based on the information available to us at this time, as described in the **Basis of Report**. The opinions and conclusions herein are based on sufficient facts or data; they are the product of our analysis utilizing reliable, generally accepted principles and methods in our applicable professional field; and they reflect a reliable application of these principles and methods to the facts of this matter. Should additional information become available, we reserve the right to determine the impact, if any, the new information may have on our opinions and conclusions and to revise our opinions and conclusions if necessary and warranted. The Phase I report was reviewed by Bruce Miller, P.E., Practice Leader.

The Phase II report was prepared by Mr. Gajen A. Rajenthiran and Iqbal Ahmed, P.E. Mr. Ahmed is the Practice Leader for Assessments and is a Licensed Professional Engineer in the State of Florida (Reg. No. 91102) specializing in building assessments. Mr. Rajenthiran is an associate engineer specializing in structural restoration and property investigations. The Phase II findings in this report were reviewed by Glenn Warburton, P.E., Practice Leader in structural engineering.

#### Scope of Service

The scope of this SMI is limited to the requirements as defined by Florida Senate Bill 4D and Florida Statute Section 553.899. The scope of service shall include:

1. Documentation Review: If available, construction documents, plans and specifications, and prior exploratory and engineering reports shall be provided to the Consultant by the Client to assist in the visual evaluation of the structural elements of the buildings.

2. Visual Survey (Phase I): Visual observations of the habitable and non-habitable areas will be conducted to evaluate the major structural components of the building with the intent to provide an initial assessment of the structural condition of the buildings.
3. Destructive or Nondestructive Testing (Phase II): Perform destructive or nondestructive testing at locations requiring further investigation and as identified in the SMI Phase I to fully assess areas of structural distress in order to confirm that the building is structurally sound and safe for its intended use. This includes but is not limited to mechanical sounding of the concrete surfaces using lightweight hammers and delamination detection tools with the intent to detect distress, spalling, and deteriorated areas of concrete and removal of concrete surfaces identified as cracked or spalled with the intent to detect deterioration of underlying steel reinforcement.
4. Engineer's Report and Summary: Pursuant to F.S. 553.899 (8), the milestone inspection report shall meet the following minimum criteria:
  - a. A report and summary shall be issued and certified by a registered Florida Professional Engineer (P.E.) to the Client and local Authority Having Jurisdiction (AHJ).
  - b. Describes the manner and type of inspection used to form the basis for the inspection report.
  - c. Identify any substantial structural deterioration as defined by the Florida Statutes, within a reasonable professional probability based on the scope and limitations of the inspection, describe the extent of such deterioration, and identify any recommended repairs for such deterioration, state whether the building(s) are "unsafe" or "dangerous" as defined by the Florida Building Code.
  - d. Recommend any remedial or preventive repair for any items that are damaged but are not substantial structural deterioration.
  - e. Identify and describe any items requiring further inspection. This may include the recommendation to proceed with Phase II of the Milestone Inspection.

**Components and Systems Visually Evaluated** (to the extent they are exposed, accessible, and within view)

- Exterior Walls
- Columns and Beams
- Floor System
- Balconies
- Walkways
- Stairs
- Foundation
- Interior Units
- Common Area

For the purpose of this report, the following definitions will be used as they relate to the current condition of the component or system:

- **Excellent** - The component or system is in new or like new condition. There is little or no evidence of deferred maintenance or needed repairs that can be accomplished through routine scheduled maintenance.
- **Good** - The component or system is sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary but does not rise to the level of substantial structural deterioration.
- **Fair** - The component or system is performing its function at this time but exhibits signs of deferred maintenance, evidence of previous repairs, and/or substantial structural deterioration. Repairs or replacement will be required to prevent further deterioration, prevent failure, and extend its service life.
- **Poor** - The building/components or system has either failed or cannot be relied upon to perform its original function. This may be a result of having exceeded its typical expected useful life, exhibiting excessive deferred maintenance, advanced substantial structural deterioration, or being in a state of disrepair. The present

condition could contribute to or cause the deterioration of other adjoining components or systems. Significant repairs will be required.

## Section II

### BUILDING DESCRIPTION

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#### Building Information

Duchess Condominium is a residential condominium located at 220 South Collier Boulevard in Marco Island, Florida (**Photograph #1**). The subject building was designed by Gamble-Gilroy-Martin Architects P.A. in 1979. The subject building consisted of a 14-story condominium of 79 residential units and a garage level on the ground floor. According to information provided by the Collier County Property Appraiser's Office, the subject property was originally constructed in 1981 (**Table #1**).

The subject building is comprised of the following elements according to the provided building plans:

Exterior Walls: The building's exterior cladding consists of direct-applied stucco over concrete masonry unit (CMU) and concrete. The building's exterior coatings and sealants are comprised of acrylic-based paint and polyurethane sealants.

Columns and Beams: Primary structural support appears to be provided by cast-in-place mild steel-reinforced concrete shear walls, beams, and columns.

Floor System: The garage floor system is comprised of a mild steel-reinforced concrete slab system. The elevated building floor system is comprised of a post-tensioned concrete slab system.

Exterior Balconies: Elevated balconies are comprised of a post-tensioned concrete slab system.

Exterior Walkways: The building has interior hallways constructed similar to floor systems.

Stairs: Interlocking stairs are located at the center of the building and provide access to each level of the building. The stairs are comprised of mild steel-reinforced concrete landing and stairs supported by mild steel-reinforced columns and beams.

Foundations: According to building plans, the subject building is situated on a deep foundation system consisting of precast, prestressed concrete piles; mild steel-reinforced mat foundations; and mild steel-reinforced pile caps/grade beams.

**Table 1 – Building Identification.**

| <b>Building Identification</b> | <b>Building Address</b>                    | <b>Number of Stories</b> | <b>Number of Units</b> | <b>Year Built<sup>1</sup></b> |
|--------------------------------|--------------------------------------------|--------------------------|------------------------|-------------------------------|
| 1                              | 220 S Collier Blvd, Marco Island, FL 34145 | 14                       | 79                     | 1981                          |

*<sup>1</sup> Based on the Collier County Property Appraiser information.*

## Section III

### FIELD OBSERVATIONS

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Field observations were limited to visual observations of the major structure components (including the interior units and common areas) to the extent they are exposed, accessible, and within view at the time of the site visit with the intent to identify areas of “substantial structural deterioration” as outlined in Senate Bill 4D and Florida Statute Section 553.899. This term as defined by Florida Statutes 553.899 (b) means substantial structural distress that negatively affects a building’s general structural condition and integrity. The term does not include surface imperfections such as cracks, distortion, sagging, deflections, misalignment, signs of leakage, or peeling of finishes unless the licensed engineer or architect performing the Phase I or Phase II inspection determines that such surface imperfections are a sign of substantial structural deterioration. An evaluation of the structural elements of the building, which included a survey of the interior units and common areas are as follows:

#### Exterior Walls

General Structural Condition: **Good**

- The exterior walls were found to be in good condition and there were no indications of substantial structural deterioration present (**Photographs #2 through #6**).

#### Columns and Beams

General Structural Condition: **Fair**

- A majority of columns and beams were not visible in the elevated floors due to enclosures and finishes. Columns and beams were primarily visible at the garage level (**Photographs #7 through #9**).
- Concrete column spalling and beam cracking were observed at one location in the garage level during Phase I and thus was identified as an area that required further investigation to confirm the structural condition of the members (**Photograph #8**).

- During the Phase II inspection, we noted that a small portion of the concrete at the top corner of the circular column had cracked and debonded. After removing the debonded portion of the concrete we noted that the vertical, mild steel reinforcement was in fair condition with minimum corrosion. The subject circular column was designed to support the 12-inch-wide beam. However, there was a 20-inch-wide beam adjacent to it with an expansion joint between the two beams. The 20-inch beam was not designed to come in contact with the subject circular column. However, the expansion joint was terminated against the circular column causing the 20-inch-wide beam to come in contact with the column and apply stress. Due to the stress, the circular column's edge had cracked and debonded. The observed conditions at the column were consistent with substantial structural deterioration.
  - Repairs should be made to the column such that the expansion joints between the beams are honored through the subject column and ensure that the 20-inch-wide beam does not come in contact with the column.
- During the Phase II inspection, we noted an isolated area with spalls on a beam in the central-west portion of the garage area.
  - We sounded, chipped, and visually observed the subject area. The inspection revealed that the concrete spalled due to the lack of the required clear cover for the hooked reinforcement bars. The observed conditions represented substantial structural deterioration (**Photograph #20**).
- During the Phase II inspection, we noted an isolated area with spalls on a beam in the west portion of the garage area.
  - We sounded, chipped, and visually observed the subject area. The inspection revealed that the concrete spalled due to the lack of the required clear cover for the reinforcement bar. The observed conditions represented substantial structural deterioration (**Photograph #21**).
- During the Phase II inspection, we noted several vertical cracks on a beam in the south-central portion of the garage. The beam was located below the pool deck.

The vertical cracking was consistent with flexural cracks. The condition represented substantial structural deterioration (**Photograph #22**).

- We recommend that appropriate repairs be determined with further analysis.

## Floor System

General Structural Condition: **Good**

- A majority of floor systems were not visible in the elevated floors due to enclosures and finishes. The floor system was primarily visible at the garage level. Concrete slab spalling and cracking were observed in one area of the garage and identified as an area that required additional investigation. During the Phase II inspection, we identified another similar cracking pattern on the adjacent slab area.
  - The areas of distress were sounded, chipped, and visually observed. The inspection revealed that concrete had cracked and spalled at these locations due to exposure to moisture and lack of sufficient (clear) cover for the reinforcement bars (**Photographs #9 through #11**). The observed conditions represented substantial structural deterioration.

## Exterior Balconies

General Structural Condition: **Fair**

- Stucco delamination was observed at the balcony slab edge. This condition does not represent substantial structural deterioration (**Photograph #12**).
- A handrail detached from the wall was observed at the balcony location. This condition does not represent substantial structural deterioration (**Photograph #13**).
- Cracking was observed at the balcony floor topping slab of units 406 and 802, during the Phase I inspection and was identified as an area that required additional investigation.
  - During the Phase II inspection, we chipped away the cracked topping and sounded the slab concrete. The investigation revealed that the cementitious

finishes (topping) had failed and the concrete in the subject area was not damaged. The condition did not represent substantial structural deterioration. However, we recommend that the unbonded cementitious finish must be repaired and painted to avoid future damage to concrete (**Photographs #14 and #15**), **Unit 406 and 802**.

## **Stairs**

General Structural Condition: **Good**

- The interior stairs were found to be in good condition and there were no indications of substantial structural deterioration present (**Photograph #16**).

## **Foundation**

General Structural Condition: **Good**

- The foundation system was not visible at the time of the site visit and, therefore, was not visually inspected. Substantial structural deterioration was not observed for visible components related to the foundation.

## **Interior Units**

General Structural Condition: **Good**

- Interior units were found to be in good condition and there was no indication of substantial structural deterioration present (**Photograph #17**).

## **Common Areas**

General Structural Condition: **Good**

- Common areas were found to be in good condition and there was no indication of substantial structural deterioration present (**Photographs #18 and #19**).

## Section IV

### ENGINEER'S OPINIONS AND RECOMMENDATIONS

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Based on the information gathered from this inspection (Phase II), substantial structural deterioration and deficiencies were identified in isolated areas on the concrete columns, beams, and slabs. At the concrete beams and slabs, areas of distressed concrete were noted in the form of spalling concrete (unbonded concrete) as confirmed by the removal of unbonded concrete using masonry hammers and subsequent visual inspection of the exposed corroded steel reinforcement (**Photographs #9 through #11, #20, and #21**). At the concrete column (**Photographs #7 and #8**), the debonded concrete was caused by a construction deficiency that failed to honor the expansion joint between the beams and column. Additionally, we noted flexural cracks on a concrete beam located in the south-central portion of the garage below the pool deck. This condition also represented substantial structural deficiencies(**Photograph #22**).

A preliminary repair scope includes the repair of spalled and delaminated concrete and corroded rebar. Concrete repairs shall entail excavating damaged concrete, providing sufficient (clear) cover, coating reinforcing steel with a corrosion-inhibiting coating, and re-casting with a compatible repair mortar, all repairs are to be in accordance with International Concrete Repair Institute standards. At the concrete column, the expansion joint must be honored such that the distressed column is isolated from the 20-inch-wide beam. The beam with flexural cracks and the ceiling slab below the pool deck should be further analyzed to determine the appropriate repair scope.

For areas that did not rise to the level of substantial structural deterioration, Rimkus recommends routine building maintenance which includes but is not limited to the replacement of unbonded stucco, sealing of exposed cracks in the exterior stucco finish, replacement of unbonded floor topping (at balconies) and waterproofing, and exterior painting and caulking of the building (**Photographs 12, 14, and 15**). Forgoing repairs and routine maintenance may adversely affect the integrity of the structure.

## Section V

### LIMITATIONS/INFORMATION SOURCES

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The scope of work for this SMI was limited to performing tasks as defined in the agreement between Rimkus and the Client. The use of this report by any unauthorized third party shall be at their own risk.

Excluded from said contract is the existence of any code violations within the property, the location of any well field protection areas, urea formaldehyde insulation or testing for lead within any structures on the subject property, the existence of the “sick-building” syndrome within any structure on the subject property, geotechnical analysis or indoor air quality, structural stability of building(s), or construction claims.

This SMI was performed to render a professional opinion regarding the structural condition of the aforementioned components of the subject property (based upon on-site, visual observations) as outlined in the Florida Senate Bill 4D Building Safety Act and Florida Statute Section 553.899. The engineer’s opinions and initial repair recommendations provided within this report are limited by the methods of this assessment, which did not include the mechanical sounding of concrete, materials testing, destructive investigation, or other technically exhaustive evaluation methods. This assessment did not include an assessment of the roof, windows, doors, mechanical, electrical, plumbing, fire protection, site characteristics, inaccessible areas, or interior components or areas that were inaccessible or hidden from view. It is important to note that all but an exhaustive investigation might fail to locate or identify deficiencies that may be buried, covered, or not reasonably visible. Rimkus assumes that there are no hidden or unapparent physical or environmental conditions of the buildings, site, subsoil, groundwater, structures, or surroundings that may have an adverse effect on the subject property, whether the source is on site, located on adjacent properties, or in surrounding areas. This report is not intended to identify construction defects or to determine if the condition of the existing building is in compliance with the Florida Building Code or the Fire Safety Codes that may be associated with the construction of the property or to provide an environmental, geotechnical, or building envelope analysis or survey of the building other than the components cited.

Information and opinions furnished by Rimkus and its representatives were obtained from sources that are considered and assumed reliable and believed to be true and correct. Rimkus and its representatives assume no responsibility for any inaccuracies in such items that may be revealed because of subsequent action. These occurrences are beyond our control.

Opinions and recommendations drawn from the results of this assessment are limited by the methods used and do not represent a warranty. All portions of this report, including the summary and limitations, are an integral part of this SMI and should not be separated from any other portion of the report.

## Section VI

### EXHIBITS

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#### A. Attachment A - Photographs

**Section V**  
**ATTACHMENT A**

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**Photographs**

**Photograph 1**  
Duchess Condominium Association, Inc.



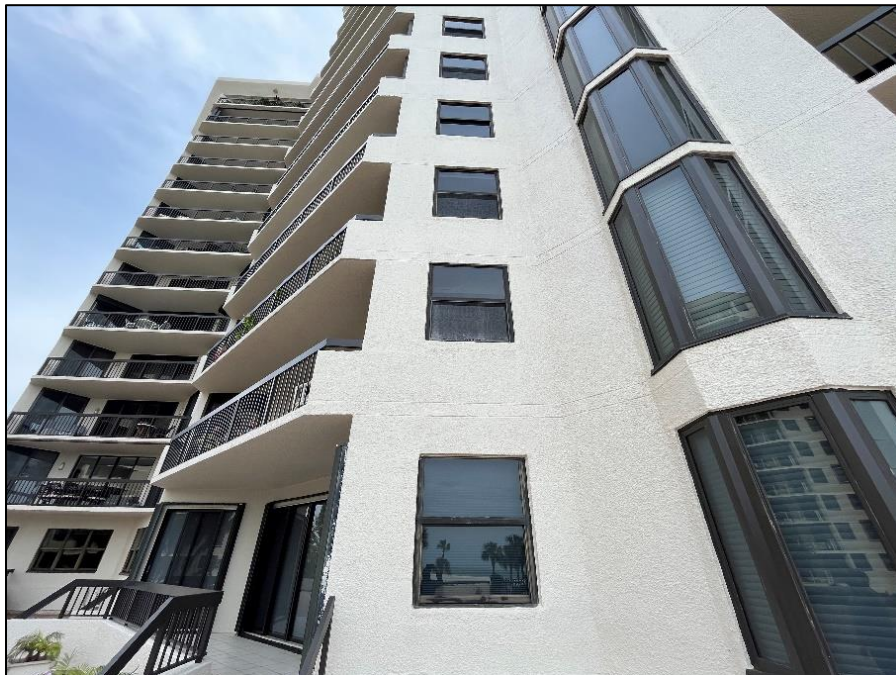
**Photograph 2**  
Exterior walls – east elevation.



**Photograph 3**  
Exterior walls – south elevation.



**Photograph 4**  
Exterior walls – south elevation.



**Photograph 5**  
Exterior walls – west elevation.



**Photograph 6**  
Exterior walls – north elevation.



### Photograph 7

Columns and beams – garage level overview.



### Photograph 8

Column – garage level. The cracking on the column was observed during the Phase I inspection. During the Phase II inspection, after chipping the debonded concrete and close inspection we identified a construction deficiency that did not honor the expansion joint between the beams, which allowed the beam (left) to stress on the column causing the cracking and failure of the small portion of the concrete.



**Photograph 9**

Floor system – garage level. General area of visual distress shown.



**Photograph 10**

Floor system – garage level. Concrete slab cracking was observed at one location.



**Photograph 11**

Floor system – garage level. Concrete slab spalling and cracking were observed at one location. This condition requires further investigation to confirm structural condition.



**Photograph 12**

Unit 301 balcony – Damaged stucco void at detached; this condition does not represent substantial structural deterioration.



**Photograph 13**

Unit 305 balcony – Detached hand railing from wall.

**Photograph 14**

Unit 406 balcony – During the Phase II inspection, we chipped up the cracked topping and sounded the slab concrete. The investigation revealed that the cementitious finishes (topping) had failed and the concrete in the subject area was not damaged. The condition did not represent substantial structural deterioration. However, we recommend that the unbonded cementitious finish must be repaired and painted to avoid future damage to concrete.

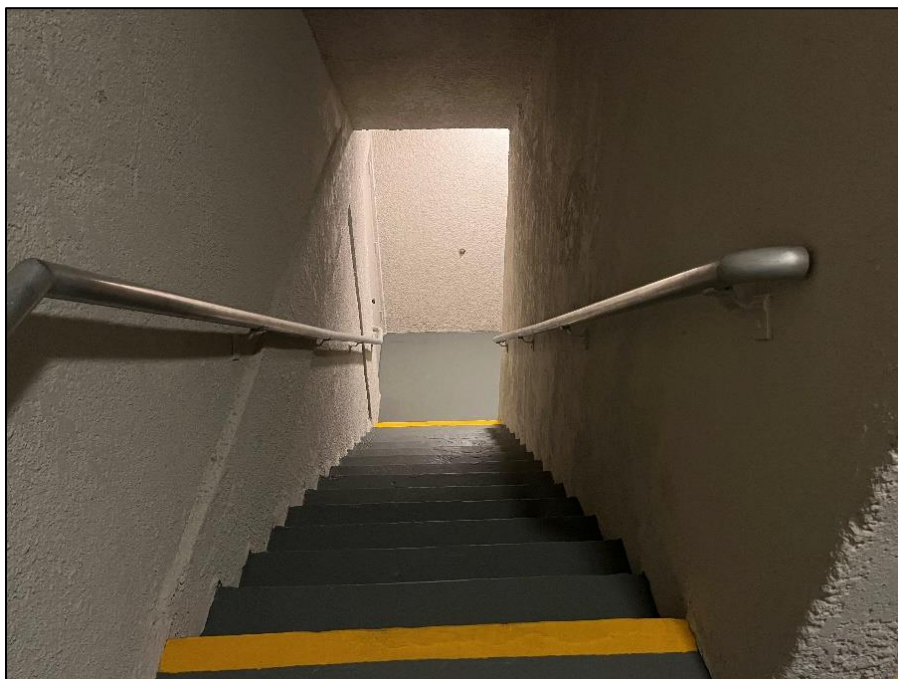


**Photograph 15**

Unit 802 balcony – During the Phase II inspection, we chipped up the cracked topping and sounded the slab concrete. The investigation revealed that the cementitious finishes (topping) had failed and the concrete in the subject area was not damaged. The condition did not represent substantial structural deterioration. However, we recommend that the unbonded cementitious finish must be repaired and painted to avoid future damage to concrete.

**Photograph 16**

Stairs – 14<sup>th</sup> floor typical overview.



**Photograph 17**

Interior units – unit 503 overview.



**Photograph 18**

Common area – first-floor overview.



**Photograph 19**

Common area – first-floor overview.



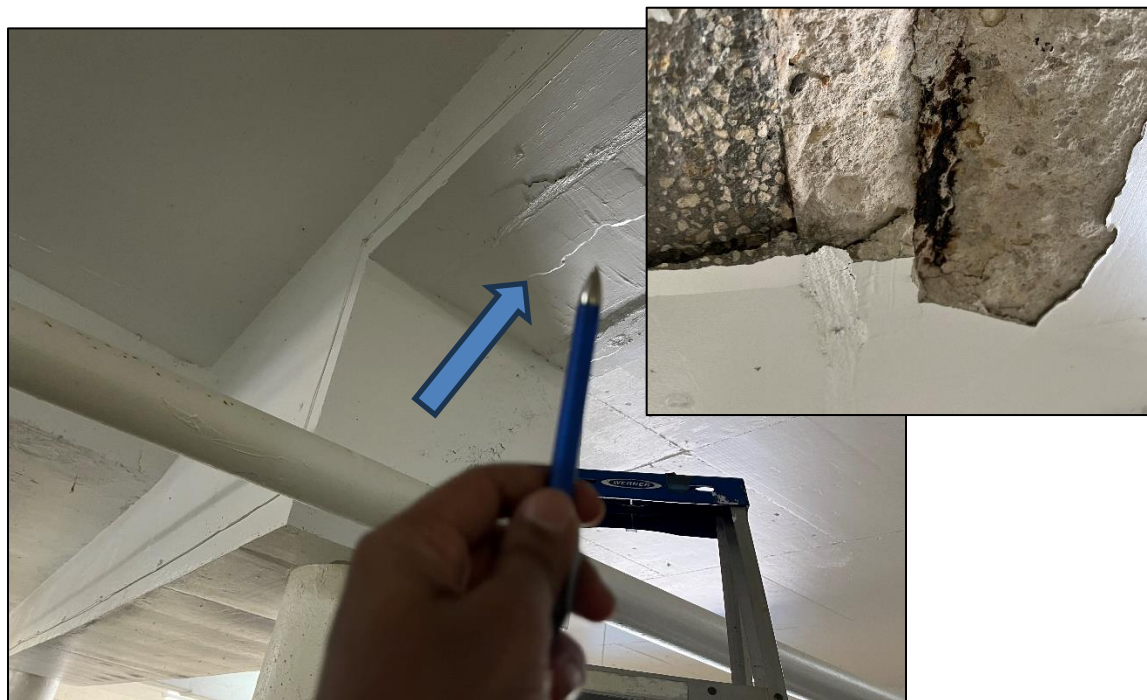
**Photograph 20**

View of the spalled concrete beam in the west-central portion of the garage. This condition represented substantial structural deterioration.



**Photograph 21**

View of the spalled concrete beam in the west portion of the garage. This condition represented substantial structural deterioration.

**Photograph 22**

View of the flexural cracks on a beam located in the south-central portion of the garage. This condition represented substantial structural deterioration.

