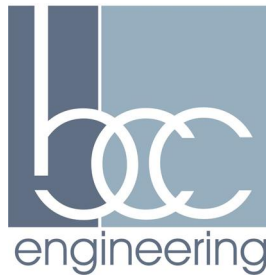


STRUCTURAL CONDITION ASSESSMENT

For

**Fernwood Apartments
935 Pennsylvania Ave.
Miami Beach, FL**

Prepared by:



**BCC Engineering, Inc.
Certificate of Authorization No. 7184**

February 4, 2022

**Christian Aquino, PE, SI
Florida License No. 74647**

Table of Contents

| | |
|------------------------------------|---|
| 1. INTRODUCTION | 2 |
| 2. DESCRIPTION OF STRUCTURE | 2 |
| 3. FIELD OBSERVATIONS | 3 |
| 4. CONCLUSIONS | 3 |
| 5. RECOMMENDATIONS | 4 |
| 6. OPINION OF PROBABLE COST | 5 |
| 7. DISCLAIMER | 6 |
| Appendix A – Representative Photos | |

1. INTRODUCTION

On January 10, 2022, the City of Miami Beach Office of Housing & Community Services authorized BCC Engineering, LLC (BCC) to perform a structural inspection of an apartment building located at 935 Pennsylvania Ave, Miami Beach, Florida.

1.1. Objectives

The objective of the report is to provide an observation of the existing condition of the building, identify any deficiencies, and provide recommendations on our findings.

1.2. Methods and Techniques

BCC utilized the following methods and techniques:

- Visual observation/digital camera

The inspection was based on visual observation of the accessible portions of the apartment building. In order to determine the importance of observations noted at the site, items were categorized as one of three types:

- Immediate: This category refers to items that require immediate attention for one or more of the following reasons:
 - 1) They pose a threat to human health and/or safety.
 - 2) They are in an impending state of failure.
 - 3) Their condition is likely to worsen rapidly and result in more expensive repairs in the future.
- 5 Years: This category refers to items that are currently in acceptable condition but it is likely that within 5 years they will require attention and repairs.
- 10 Years: This category refers to items that are in current acceptable condition, but over the repeated use of the building through the next 10 years, they will need maintenance to remain functional and safe.

2. DESCRIPTION OF STRUCTURE

Based on the Miami-Dade Property Appraiser, the existing structure is an 18-unit three-story residential building built in 1925. The existing structure consists of CMU exterior walls and concrete slabs at the ground, second, third and roof levels. The second floor, third floor and roof are supported with concrete beams and columns. There are two stairwells in the structure. The north stairwell is concrete while the west stairwell is composed of steel.

3. FIELD OBSERVATIONS

On January 27, 2022, BCC visited the site to observe and document the overall condition of the existing structure. The conditions were based on visual observations during the time of inspection. Table 3-1 summarizes the main observations of the structure. Refer to Appendix A for the photos identified in the Table.

| Item | Repair Priority | Item Description | Representative Photos |
|------|-----------------|---|-----------------------|
| S-1 | Immediate | General condition of stucco/façade throughout building. Cracks and delaminations observed throughout. | Photos #1 to #5 |
| S-2 | Immediate | General condition of stucco/façade throughout building. Some sills were observed to have spalled off. | Photos #6 to #7 |
| S-3 | Immediate | Broken window. | Photo #8 |
| S-4 | 5-Years | Door frame oxidizing. | Photo #9 |
| S-5 | Immediate | Spalls/Delaminations on exterior wall of east stair. | Photos #10 & #11 |
| S-6 | Immediate | East stair shored due to concrete spalls. | Photo #12 |
| S-7 | 5-Years | General condition of units. | Photos #13 to 15 |
| S-8 | 5-Years | General condition of roofing and roof top AC units. | Photos #16 to #17 |
| S-9 | 5-Years | General condition of stucco and roofing along perimeter. | Photo #18 |

4. CONCLUSIONS

Overall, the structure is in fair condition with several areas of concern. There are cracks and delaminated areas on the building exterior that need to be repaired. On the east stair, delaminations at the third floor landing were observed on the walls. At the ground floor, the stair is shored due to damage caused by concrete spalls/delaminations. Stair access is limited due to the shoring leaving the building with one means of egress.

Corrosion was observed on the AC stands at the roof. The roofing has patchwork throughout the entire work. Some bubbles in the roofing membrane were observed. Water ponding at the center of the roof was observed due to minimal sloping of the roofing.

Given the age of the building and corrosive environment, spalls/delaminations are expected and do not pose an immediate unsafe condition. If left unresolved, however, these areas will worsen increasing the damaged area requiring repair and creating an unsafe condition. Delaminated portions of the structure will eventually spall off and fall to the ground. If left untreated, cracks can become spalls and delaminations. As water seeps into the unsealed cracks, the reinforcement corrodes which expands and loosens the concrete.

The information contained within this report is based on the conditions observed at the time of inspection. The report is for general condition assessment purposes only and is not sufficient, in and of itself, to prepare construction documents for rehabilitation/repair work. Existing conditions are subject to change.

5. RECOMMENDATIONS

Based on field observations, it is recommended that aforementioned areas of the structure be repaired. A Florida licensed Structural Engineer shall be retained to fully develop construction repair documents. The following types of repairs are recommended:

- Replace broken window.
- Repair/Replace roof top AC units.
- Stucco and repaint the exterior of the building.
- Concrete Repair:

Concrete Repair

Epoxy Injection: Cracks that are in sound concrete (do not have corrosion stains, sound hollow when struck with a hammer indicating delamination, etc.) and have a crack width between 0.005 and 0.25 inches may be injected with an epoxy resin. Prior to epoxy injection, cracks being repaired shall be cleaned to remove any loose debris and organic material.

Concrete Spall/Delamination Repair (without reinforcement): Concrete that is not sound (loose, delaminated, etc.) shall be removed and the sound concrete surface shall be cleaned of any debris and organic material. The area being repaired shall be saw cut to a minimum depth of 1-1/2 inches and form a square/rectangular area with 90 degree sides. Interior corners should be rounded to a minimum radius of 1 inch. Feather edges must be avoided. The area receiving new concrete shall be roughened/keyed in order to provide adequate bond. A bonding agent may be provided in addition for added bond or as a substitute to roughening the concrete surface. Once the area has been prepped, patch with repair mortar that is suitable for extremely aggressive environments.

For areas that are deeper than 2 inches and/or have section loss greater than 20%, repairs shall be made by shotcrete. Care shall be taken not to adversely affect adjacent, sound concrete. The concrete surface receiving shotcrete shall be prepared as aforementioned.

Concrete Spall/Delamination Repair (with reinforcement): Remove concrete that is not sound (loose, delaminated, etc.) above oxidized (corroded) reinforcement beginning with a 1/2" deep saw cut perimeter. Use only light, 15 LB electric chipping hammers. Once initial removal is complete, proceed with the undercutting of all exposed oxidized reinforcement providing 1" minimum clearance between exposed reinforcement and sound concrete. Concrete removal shall extend along oxidized reinforcement to a location that is free of bond inhibiting

conditions and where reinforcement is well bonded in sound concrete. Repair area shall form a square/rectangular area with 90 degree sides. Interior corners should be rounded to a minimum radius of 1 inch. Feather edges must be avoided.

Oxidized reinforcement shall be sandblasted or mechanically cleaned. Splice reinforcement with equal size bar where section loss of 15-20% occurs. All exposed reinforcement shall be coated with a corrosion inhibitor. Patch area with repair mortar that is suitable for extremely aggressive environments.

6. OPINION OF PROBABLE COST

Based on our field observations, an opinion of probable repair and maintenance cost has been provided for budgeting purposes.

| Opinion of Probable Cost of Immediate Repairs | | | |
|---|-----------|------|------------------|
| Item Description | Unit Cost | Unit | Cost |
| Stucco | \$180,000 | 1 | \$180,000 |
| Exterior Painting | \$35,000 | 1 | \$35,000 |
| Concrete Repairs | \$40,000 | 1 | \$40,000 |
| Subtotal | | | \$255,000 |
| General Conditions (10% of Construction Cost) | | | \$25,500 |
| General Requirements (15% Contractor O&P) | | | \$42,075 |
| 10% Contingency | | | \$32,258 |
| Total | | | \$354,833 |

| Opinion of Probable Cost for Future Budget | | | |
|---|-----------|------|--------------------|
| Item Description | Unit Cost | Unit | Cost |
| Unit Renovation | \$30,000 | 18 | \$540,000 |
| New Windows & Doors | \$125,000 | 1 | \$125,000 |
| New Condensing Units | \$5,000 | 18 | \$90,000 |
| New Roof | \$90,000 | 1 | \$90,000 |
| Subtotal | | | \$845,000 |
| General Conditions (10% of Construction Cost) | | | \$84,500 |
| General Requirements (15% Contractor O&P) | | | \$139,425 |
| 10% Contingency | | | \$106,893 |
| Total | | | \$1,175,818 |

7. DISCLAIMER

The opinions and comments in this report are based on visual observation at the time of inspection only. There is no claim, either stated or implied. This report does not address any other portions of the structure other than those areas mentioned, nor does it provide any warranty, either expressed or implied, for any portion of the existing structure. This report is created solely for the Client's benefit, and no other entity shall have any rights or claim against the conditions assessment professional because of the performance or non-performance of the observations, opinions, conclusions or recommendations contained herein.



Photograph #1



Photograph #2



Photograph #3



Photograph #4



Photograph #5



Photograph #6



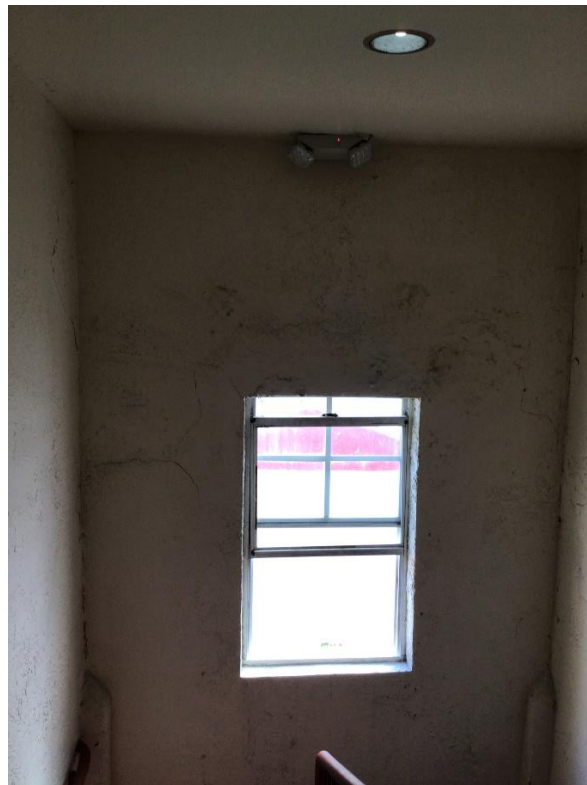
Photograph #7



Photograph #8



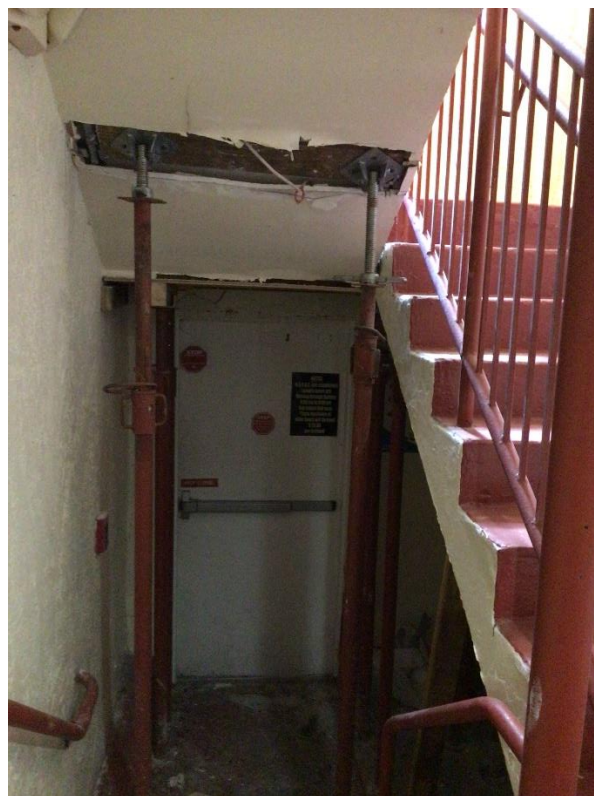
Photograph #9



Photograph #10



Photograph #11



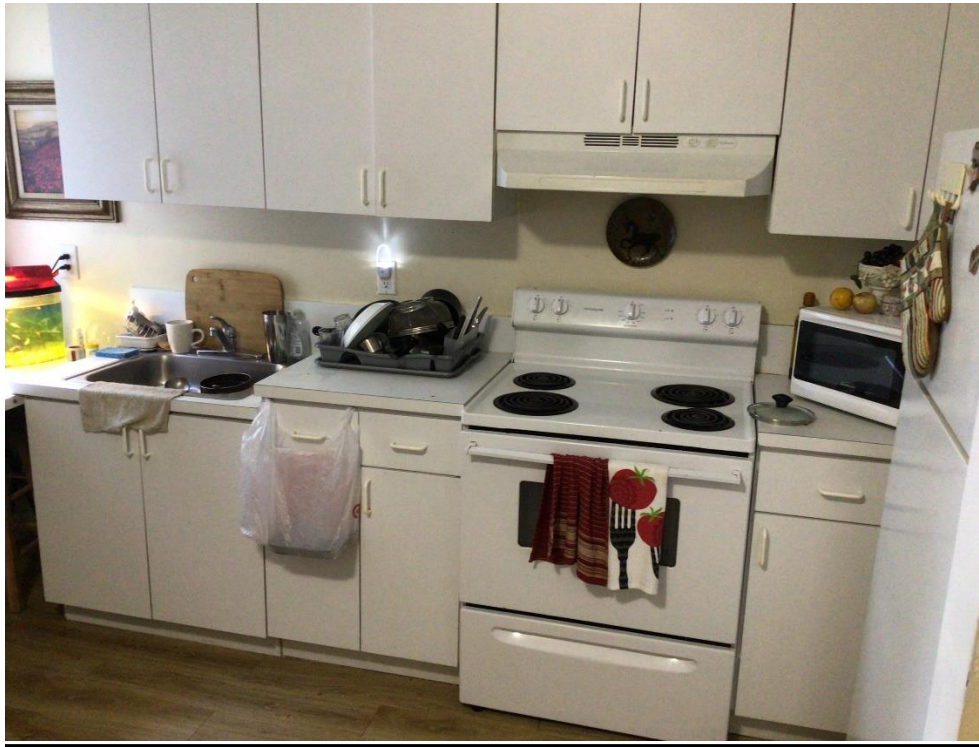
Photograph #12



Photograph #13



Photograph #14



Photograph #15



Photograph #16



Photograph #17



Photograph #18