

STRUCTURAL CONDITION ASSESSMENT
334 20 Street
Sadigo Court
Miami Beach, Florida

Prepared for
Blue Road, LLC

June 20, 2016

PREPARED BY



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I. INTRODUCTION

General

Per the request of Blue Road, LLC, we have conducted a visual structural condition assessment on the existing structure located at 334 20 Street in Miami Beach, Florida. The Building is located in the Miami Beach HPD-5 Museum Historic District.

The purpose of the inspection is to assess the structural condition of the structure to determine the feasibility of the development of the structure.

Structural System

The Structure is a three story masonry building. The Building Structural System is as follows:

- First Floor:
 - o Elevated wood floor framing, with wood planking
 - o Exterior masonry bearing walls, with concrete tie beams
 - o Interior wood load bearing stud walls
- Second Floor:
 - o Wood floor framing, with wood planking
 - o Exterior masonry bearing walls, with concrete tie beams
 - o Interior wood load bearing stud walls
- Roof:
 - o Wood framing, and wood planking
 - o Low masonry parapet

The components and cladding of the building, such as doors, windows and roof waterproofing are not addressed in this report. The Mechanical and Electrical systems are not part of this report.

II. METHODOLOGY

This inspection was visual in nature from the exterior and interior of the building. Our office did not perform any destructive or non-destructive testing.

It's our opinion that the current structural system of the building does not comply Florida Building Code 2014, HVHZ (High Velocity Hurricane Zone) edition.

III. STRUCTURAL SYSTEMS

Based on Miami Dade County tax records, the structure was built in 1936 with an area of 25,6085 square feet. The building is approximately 83 feet long (North-South direction) by 75 feet wide (East-West direction). The building is three main stories, the building's structural members are as follows:

Foundations: The building is built on shallow foundations. The foundations support a concrete stem walls (interior). The interior stem walls support the interior wood stud walls and the exterior foundations support the exterior masonry walls.

Exterior Walls: The exterior walls of the building are concrete masonry unit (CMU) block bearing walls. The CMU block is the three cell block, which was typical at the time of construction of the building.

Interior Walls: There are two types of interior walls, load bearing and non-load bearing. Both types are wood 2"x4" stud walls. The load bearing walls support the floor joists system extending from the exterior walls. These stud walls are in turn supported by the concrete stem walls and foundations.

Floors: The flooring system is typical on all floors. The wood floor joists are spanning between exterior walls supported by the interior load bearing walls. The joists system is supporting wood planks making up the floor system. All wood joists are "Fire Cut" into the CMU wall, meaning the wood joists are resting in openings in the CMU wall and are not connected to the walls via strapping or any other mechanism.

Roof: The actual roof deck is wood joists supporting wood planks. The roof is sloped deck for stormwater drainage.

IV. SITE OBSERVATIONS

We have inspected the structure, and our summary of the evaluation of the existing conditions of the structural components are as follows:

Concrete members; which are the tie beams, and foundations have variable levels of deterioration. This is acceptable based on the age of the building.

Wood members; The roof water proofing is in fair condition. However, there is moisture intrusion in multiple locations. The wood floor joists are not level, that condition leads to probable wood deterioration.

Masonry members; which comprise the exterior walls of the building, are mostly in good condition. There are several hairline cracks in the masonry that are attributed to age, exposure to the elements, and settlement of the shallow foundations.

The components and cladding elements of the building and accessories such as doors, windows, louvers, rails, are all in poor to fair condition.

V. STRUCTURAL EVALUATION

There are several factors to be considered in the structural evaluation of this building;

Initial Construction:

Building construction and standards of the 1930's are considered deficient in today's standards. This applies to this structure and other structures built in the 1930's. This building under current building code is deemed deficient. The structure's roof connections for wind uplift forces, and for wind lateral resistance are non-existent. Moreover, openings protection, and CMU reinforcing is also non-existent. To develop this building it has to undergo level III alteration of the Florida Building Code 2014 for existing structures. This means that the building has to be strengthened to comply with the current Florida Building Code. Lateral load structural systems have to be installed such as shearwalls. Wall openings such as doors and windows and the exterior CMU walls have to be reinforced. Hence, the foundations also have to be strengthened to resist such lateral loads.

Any level III alteration to the existing structure is going to require:

- 1- CMU reinforcement at the edges of openings
- 2- CMU reinforcement at a maximum of 48" spacing

- 3- New structural columns to carry loads to new foundations
- 4- New floor plates, as the existing floor plates are below the required structural capacity.

VI. RECOMMENDATIONS

Based on the site observations of the conditions of structural members of the building, and level III alteration required by the Florida Building Code, the structural members of this building need to be augmented as follows:

- Foundations:
 - o Existing shallow foundations shall be reinforced with helical piles
- Walls:
 - o Walls shall be reinforced with filled cells vertical reinforcing at opening edges and at a maximum distance of 48".
- Columns:
 - o New Columns sized for current Florida Building code shall in installed
- Beams:
 - o New beams sized for current Florida Building code shall in installed
- Floor plates:
 - o New concrete floor plates for the second and third floors shall be sized and installed per the current Florida building code.

To protect the existing CMU walls, they will be reinforced before any work proceeds. The reinforcement will be the openings edge vertical filled cell reinforcement, and at maximum spacing of 48" o/c. Moreover, foundations enhancements, will also be performed before the replacement of the floor slabs. This way we are ensured that the walls are stable. New columns will be installed on the new foundations to carry the concrete slab loads.

The following is the bracing procedure to support the building:

1. Strip and remove all existing non-structural wall and ceiling finishes (stucco, plaster, drywall, etc.) to expose all masonry walls, concrete tie beams and tie column and Ground, second, and third Floors wood rafters/joists.
2. Inspect all existing exposed concrete tie beams and columns. Any damaged concrete (cracking, spalling, etc.) and rusted reinforcing bars - will be repaired or replaced, so as to restore the elements to their original design strength and capacity.

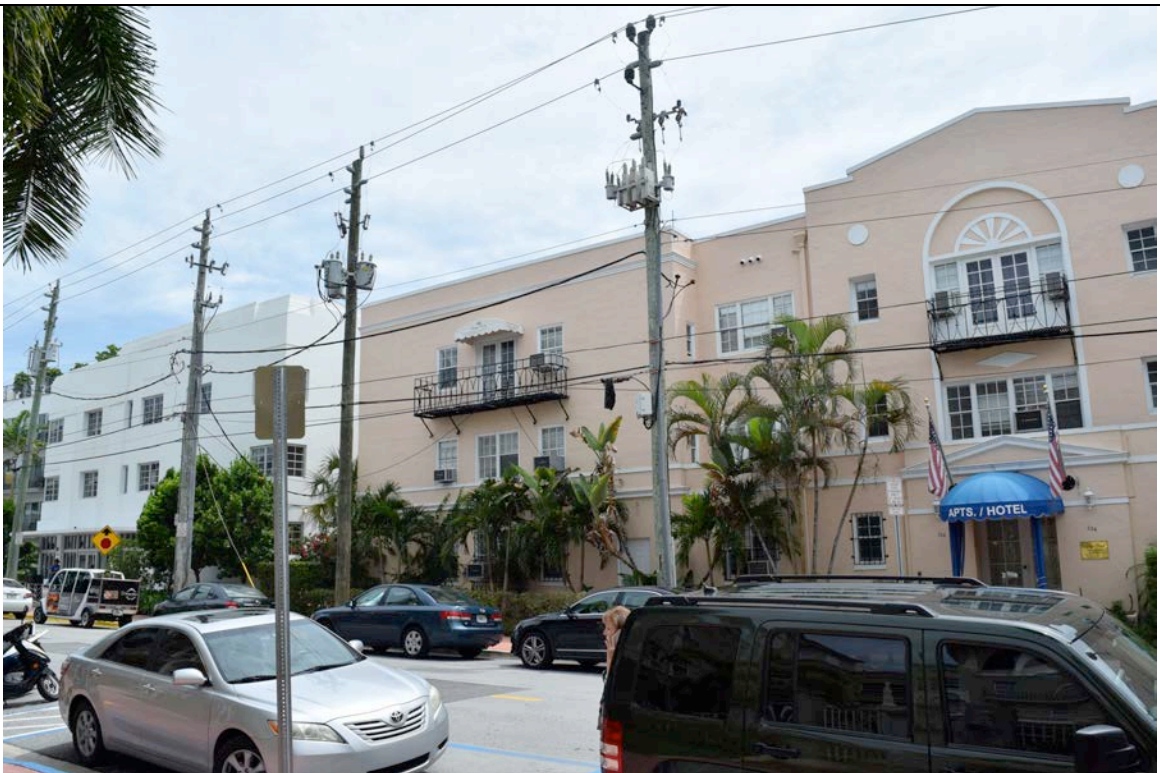
3. Existing exterior masonry walls will be reinforced using vertical #5 rebars (continuous from the footing to the roof beams) spaced at 48" o.c., placed in grout/concrete filled block cells. This reinforcement will significantly add to the load capacity of the existing old masonry walls (to resist downward loads and lateral wind).
4. External lateral bracing of the exterior walls will be installed all around the building to support the existing CMU walls of the building. The lateral bracing will support the walls at the second and third levels with steel bracing that is supported on the ground with temporary concrete foundations.
5. Steel columns will be installed to carry new concrete slabs on the second, third, and the new fourth floor and pool deck on the East wing.
6. Construction of the new South addition can be done concurrently. Pile foundations with grade beams and reinforced masonry walls with concrete slabs.
7. The exterior walls, and foundations will be strengthened to carry the additional load from the proposed floors.

APPENDIX A

PHOTOS



North - West Elevation



North - East Elevation



West Elevation



Interior Courtyard



Interior Hallway, First Floor



Courtyard view, looking South



Roof View , looking West