# GENERAL ASSESSMENT REPORT

**FOR THE**

# EXISTING STRUCTURAL SYSTEMS

**AT**

# 803 2ND STREET
# MIAMI BEACH, FLORIDA

## APRIL 5, 2021

PREPARED BY:
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## 803 2nd Street
## Miami Beach, Florida

DOUGLAS WOOD ASSOCIATES, INC.
STRUCTURAL ENGINEERS

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## INTRODUCTION

### General
The writer has conducted a general assessment of the present conditions of the existing primary structural systems for the existing building located at 803 2nd Street in Miami Beach, Florida.

### Purpose
The purpose of this investigation was to provide a general assessment of the present conditions of the existing primary structural systems at this point in time and to provide a general determination of how these conditions may relate to future repair, renovation and restoration.

### Scope
This investigation includes the primary structural systems for this existing building.

Primary structural systems for this building generally consist of the following:

- Roof framing,
- Floor framing,
- Bearing walls, and
- Foundations.

Primary structural systems do not include roofing or other waterproofing systems, doors, windows, decorative elements, fixtures, non-bearing partitions, and architectural finishes. While conducting our structural observations, however, we may have observed conditions relative to these systems that relate to structural systems, and we report them herein for the benefit of the reader.

Roofing, insect infestations (including termites and other wood-destroying insects), mechanical, plumbing and electrical systems, environmental issues (including radon, mold and ground contamination) and hazardous materials (including lead paint and asbestos) are not included in the scope of this structural assessment.

## METHODOLOGY AND LIMITATIONS

Our investigation of existing conditions was primarily conducted as follows:

- Visual Observations
    - Since architectural finishes remain in place throughout most of the interior and exterior of the building, direct observation of structural materials was limited. Since no asbestos report was made available to us, we did not disturb existing materials. Direct observation of structural materials was possible in:
        - Adjacent to a small vent/access screen to the crawl space under the floor on the east side of the building, and
        - A couple of locations where the existing exterior stucco and lathe had fallen away.
    - Where structural members were not or could not be directly observed, a sampling of members was observed, or observations were directed at secondary signs of structural distress such as cracking, bulging, staining and deflections. Also, due to the constraint of time, investigations did not include an exhaustive member by member inspection. Therefore, it must be recognized that at future times, deteriorated or distressed structural components that were not directly observed or specifically reported during this investigation, are likely to be found.
- Limited “sounding” of existing structural members and finishes
    - “Sounding” consists of tapping the surfaces of existing materials using a small steel hammer. Some information on the type of construction and its condition can be determined in this manner.
- Limited Metal Detection
    - Metal detection was conducted on a small sample area of the perimeter fence.

Structural calculations have not been performed to confirm the inadequacy/adequacy of the original design and construction of the existing structural systems for this building. Douglas Wood Associates assumes no responsibility for the structural design or construction of this existing building. The findings presented in this report do not imply any warranty on the performance or Building Code conformance of the existing structural systems.

In the absence of observations to the contrary, we have assumed that the existing structural systems (original and subsequent modifications) were properly designed, permitted, constructed and approved in accordance with the building code and general design and construction practices in effect at the time of construction. Also, while we performed observations of the existing structural systems, our observations

were limited by time constraints and to what could be readily observed in the existing building.

No sampling and testing of existing materials were conducted for this investigation.

## GENERAL DISCUSSION

In general, this building could be considered to have withstood the "test of time" and therefore, to have structural systems that were generally considered adequate for their intended purposes. However, it must be recognized that the standards, methods, products and practices of the time this building and subsequent modifications were made vary considerably from those of today. Therefore, there are many aspects of the existing structural systems which do not conform to today's standards, practices and codes. It should also be noted (as will be indicated in this report), that there are a number of areas of significant deterioration.

It also should be recognized that the standards of structural engineering practice for older, historical buildings were far lower than those of today. A structure such as this one would not have been designed by an engineer. Resistance to design gravity loads, live-load deflection and high wind forces in older buildings are almost always deficient relative to current standards. While this building may have survived hurricane force winds, it should be noted that the effects of wind on a building will vary greatly depending on wind speed, wind direction and wind exposure (which, as a function of the building's surroundings, can substantially change over time). Of course, structural deterioration is also progressive. Therefore, a building's performance in one hurricane may be very different from its performance in another hurricane.

## EXISTING SITE CONDITIONS RELATIVE TO STRUCTURAL ISSUES

### Environmental Influences

**Hurricanes**

All of South Florida is vulnerable to hurricanes, and most all older buildings in South Florida, including this building, have been subjected to hurricane-force winds. Past performance, however, cannot be considered a reliable predictor of future performance. Obviously of course, deterioration is progressive, and structural systems may weaken over time. Wind speed, direction and the effects of surrounding trees and construction are also significant factors.

**Flooding**

Floods are possible in most of the coastal regions of South Florida. According to FEMA's Flood Map Service Center website, this building is located within a FEMA AE-8 flood zone. The FEMA Base Flood Elevation for this site, therefore, is +8.0 N.G.V.D., and the Design Flood Elevation is +9.0 ft. As of this writing, an elevation certificate for this building has not been provided.

**Termites (and Other Wood-Destroying Insects)**

In the Unites States, Florida is the area most at risk for termite infestation. There are multiple species of termites that can infest buildings in South Florida.

### General Building Code Issues Relative to Future Repair, Renovation and Additions

If must be noted that this building is very old. Miami-Dade County property records indicate that the building was originally constructed in 1921. This building pre-dates the first City of Miami Beach Building Department and Building Code ordinance. Construction practices at the times of the original construction and of subsequent modifications vary considerably from those of today. This is particularly true for the design of wind resistance but is also true relative to gravity loads and performance issues, such as deflections. Therefore, there are many aspects of the existing structural systems of this building which do not conform to today's standards, practices and codes.

For this discussion, we refer to the Florida Building Code, 2020 and the Florida Building Code – Existing Building, 2020. Of course, it is possible that future Building Code editions may contain changes applicable to future repairs, renovations, and additions of this building, but we cannot speculate on such future changes.

At this time, the Building Code will generally allow straight forward minor repairs to structural members, without requirement for a specific investigation of the adequacy of the existing members.

Any future renovations with a work area of less than 50% of the total floor area would be classified as an Alteration Level 2. "Work Area" is generally defined as reconfiguration of spaces. In any case, however, any change to a structural member

would require compliance with current Building Code requirements for that particular member and for any affected members.

Where it may be determined through specific and appropriate investigation and evaluation that a structural member or system is “dangerous” (as defined in Chapter 2 of the Florida Building Code – Existing Building, 2020), it would be required to correct the dangerous condition. Where it is determined that the building as a whole or specific systems have suffered “Substantial Structural Damage” (Section 202 of the Florida Building Code 2020 – Existing Building), such damage would need to be corrected and brought into compliance with current Building Code requirements.

When proposed renovations have a work area greater than 50% of the total floor area, a project will be classified as an Alteration Level 3. The Building Official should be consulted where there is any question of interpretation relative to the determination of Alteration Level 2 or Alteration Level 3. Under Alteration Level 3, there are two levels of structural consideration. If less than 30% of the total structural area (floors and roofs) is directly involved in the renovation, structural aspects of the renovation are generally the same as for an Alteration Level 2. The area considered to be directly involved in the renovation is generally calculated to include all areas of roofs and floors undergoing structural alteration plus all areas (not already included) of roofs and floors which are gravity-load-tributary to any vertical structural support members which are altered. When the area of structural alteration exceeds 30% of the total floor and roof area, the project is considered a Substantial Structural Alteration. For this case, it is required that the altered building conform to the Florida Building Code Requirements for wind loading.

If a change of use for the building were proposed, structural enhancement for current Building Code requirements for wind loads would be required, if the proposed occupancy qualifies as a higher Risk Category as defined in ASCE 7-16.

Proposed additions would need to comply with Chapter 11 of the Florida Building Code – Existing Building.

Due to the extent of deterioration and damage in this building, it appears that any reasonable future renovation will likely be classified as correction of Substantial Structural Damage. Since the existing interior spaces are rather small and irregular, it is also likely that any possible renovation would be an Alteration Level 3, and due to the presence of interior bearing partitions and the presence of significant deterioration and damage, future renovations would be classified as a Substantial Structural Alteration under Alteration Level 3. Therefore, in general, structural systems will need to be made to comply with current Building Code requirements for strength and performance.

## GENERAL BUILDING CONFIGURATION

This building is a one-story, residential building, currently divided into two small dwelling units. The overall building plan is a rectangle. According to the Miami-Dade County Property Appraisers website, the building has total floor area of 1,080 square feet. The roof is a low-slope roof over the entire building. There are no building additions. Refer to Photographs Nos. 1 through 6 and 94 for general building configuration.

## GENERAL DESCRIPTION OF EXISTING STRUCTURAL SYSTEMS

Roof

No direct access to the existing roof framing members was provided during our site visits. From exterior observations and from our knowledge of similar buildings, it is assumed that the original roof structures generally consist of wood boards on wood rafters (probably at 24 inches on center). The roof rafters are likely supported on let boards to the exterior wall studs and on short interior stud walls supported on the ceiling joists, which bear on interior wood stud partitions.

Walls

The original exterior walls are constructed of stucco on wood lath over 2x4 wood studs at 16 inches on center. Refer to Photograph No. 41. Direct observation of the studs was limited to two locations where the exterior stucco has fallen away. The wall studs are likely continuous from the top of the floor (a platform frame configuration) up to the tops of the parapets (a balloon frame configuration). The main north-south interior partition and possibly other interior partitions are constructed of wood studs (platform frame configuration), and they support the ceiling joists, which in turn, support the roof rafters.

The exterior stem-walls, on which the floor joists bear, are constructed of concrete block. Refer to Photograph No. 97.

The exterior chimney/flue on the west side of the building is constructed of masonry. Refer to Photograph No. 6.

Floors

Direct observation of the floor structure was limited to one vent/access opening on the east side of the building. The original floors generally consist of wood board sheathing over wood joists. The joists generally bear on the exterior concrete block stem-wall (refer to Photograph No. 97) and on interior wood beams, which bear on wood shims on concrete blocks on concrete pads. Refer to Photographs Nos. 96 and 99.

Foundations

The foundations are buried and were not available for observation. Based on the writer's extensive experience with older buildings, it is assumed that the foundations are shallow, continuous wall footings. It is further assumed (based on the writer's experience) that the footings are relatively small.

Miscellaneous

The front stoop is concrete. There is an aluminum canopy above the front entrances (refer to Photographs Nos. 1 and 15).

There is a concrete block garden wall along the west property line. Refer to Photographs Nos. 50 through 54.

There is a low masonry wall with masonry piers and metal fencing along the east and south sidewalk frontages. Refer to Photographs Nos. 1, 2, 3, 55, 56, 57, 70, 71 and 72.

There is a rear patio with ceramic tile on concrete slab. Refer to Photograph No. 58.

## GENERAL ASSESSMENT OF PRESENT CONDITION OF EXISTING STRUCTURAL SYSTEMS

### Roof

1. There is only one roof scupper (through the rear parapet) for the entire roof, and there is no overflow scupper/drain. Refer to Photographs Nos. 58, 94 and 95.

2. The adjacent tall trees have deposited, and will continue to deposit, a considerable amount of debris on the roof. Such debris could easily clog the one scupper, causing a back-up of water on the roof, which could overload portions of the roof structure. Refer to Photographs Nos. 58, 94 and 95.

3. The inaccessible attic space is vented by only three small pipe vents on the front of the building and two small pipe vents on the two sides. Refer to Photographs Nos. 15, 33 and 74. These vents do not provide the area of venting long-required by the building codes.

4. There are signs of current or previous roof leaks on the interior of the southeast room. Refer to Photographs Nos. 84, 85, and 86.

5. The presently existing roofing is old, worn and cracked. Refer to Photographs Nos. 94 and 95.

6. The gutter of the aluminum canopy above the front entrances is clogged with debris, and there are plants growing in it. Refer to Photograph No. 15.

### Walls

1. Most of the exterior stucco has been replaced, with almost all of the stucco below the window-sill level having been replaced. The replacements have apparently occurred at a number of different times. The replacement areas are of obviously different textures (some very crudely applied). Some of the patches appear to have been extended over adjacent areas of stucco without proper surface preparation, resulting in areas of delamination. Refer to Photographs Nos. 6, 10 through 14, 17, 19 through 22, 26, 30, 31, 33, 34, 36, 39, 58, 59, 60, 64,75 and 77.

2. There are numerous exterior stucco cracks and numerous holes in the exterior stucco. With the stucco on wood lath and no vapor or moisture barrier, each of these cracks and holes is a source of water intrusion to the structural wood framing behind. Refer to Photographs Nos. 7, 8, 9, 12, 13, 14, 16, 18, 22, 23, 24, 26 through 30, 35, 36, 37, 45, 46, 49, 59, 65 and 68.

3. On the west side of the building, there are two locations of significant loss of exterior stucco. Refer to Photographs Nos. 31, 32, 33, 36, 40, 41, 42, 47 and 48. Both of these locations have exposed the wood lath and structural wood members (wall studs and the bearing plate, floor sheathing and floor joists below) to significant water intrusion. The exposed wall framing in the larger opening is

visibly rotted. Other presently concealed members below the opening are also likely rotted.

4. There are three through-wall air-conditioning units on the east wall of the building. Each of these units has significant gaps around their perimeters. Refer to Photographs Nos. 74, 76, 78 and 81. These gaps allow water to enter the wall cavities, which is likely causing rot of the concealed wood structural members of the wall and floor.

5. On the east side of the building, there are three window A/C units. Refer to Photographs Nos. 6, 26, 31, 32, 35 and 42. Again, there are numerous gaps that allow water to enter. These units are also not appropriately wind and debris resistant and leave the opened/modified windows less wind and debris resistant.

6. A number of the exterior window openings have been modified. Refer to Photographs Nos. 34, 41 and 42. The sills of the two front (south side) windows are at different elevations, the sills of the two rear (north side) windows are also at different elevations, and the sills on the east side are at different elevations. It is likely that the structural framing and cladding for these modified openings is inadequate.

7. There is a hive of live bees inside the wall cavity at the east end of the south wall. The bees enter and leave though a hole in the exterior stucco. Refer to Photograph No. 9.

8. None of the existing windows are original to the building. Most of the windows are single-hung aluminum (some painted white, others exposed aluminum), but one window is a slider, and the windows in the southwest room are jalousie. Most of the windows and their seals and caulking are in poor condition. None of the windows have an impact resistance rating. Refer to Photographs Nos. 4, 25, 31, 32, 34, 35, 38, 42, 68, 76, 78, 83 and 93.

9. None of the doors are original to the building. All of the doors are hollow metal with wood frames. The wood frames and wood stiles of the two rear doors are rotted. One of the rear doors has a window, while the other does not. Refer to Photographs Nos. 4, 15, 58, 62, 63, 64, 66 and 67.

10. Some of the present windows were set in previously existing wood frames. At other windows, the previous casements/frames were removed, and stucco was patched in around them. Some windows have both conditions. Most of the exposed wood casements//frames are rotted. Refer to Photographs Nos. 22, 25, 26, 31 through 36, 38, 43, 44, 58, 61 and 78. Interior window casements are also stained and rotted in some locations. Refer to Photographs Nos. 85, 86 and 87.

11. There are aluminum awnings over the windows on the front (south side) and east side of the building. The hold-open rods and fasteners are in generally poor condition and missing in some locations, making the awnings unsafe. The tops

of the awnings are not well sealed to the wall, and stucco immediately above them is generally cracked. Refer to Photographs Nos. 1, 2, 5, 7, 8, 21, and 24. It appears that there were awnings previously existing at some windows on the north and west sides of the building, but currently all that remains are the top tracks. Refer to Photographs Nos. 31 and 36.

12. The original stucco was applied on wood lath, which consists of thin strips of wood with small gaps between them, fastened to the structural wall studs with small wire nails. Such a system does not provide appropriate resistance to wind pressures, nor does it provide appropriate resistance to storm-driven debris. This system also does not include any waterproofing or vapor barrier. The lack of vapor barrier and insulation is particularly problematic when air conditioning is used. The lack of waterproofing or vapor barrier also allows every crack and hole in the stucco to be a direct source of water intrusion into the wall cavity. Also, every crack and hole allows warm humid exterior air to contact cooled interior finishes inside the wall cavity, which can result in condensation, which can support the growth of fungi.

**Floors**

1. In general, all of the wood-framed floors deflect and vibrate under foot.

2. The floors are uneven in a number of locations. This may indicate inherent weakness, deterioration, long-term deformation and or soil settlements. Refer to Photographs Nos. 88, 89, 91, 92 and 93.

3. The baseboard in the kitchen of the western unit is significantly rotted, along with staining of the wall above and deflection of the floor below. Refer to Photograph No. 91. The bathroom plumbing is on the other side of this wall. This indicates previous or current leaks in the pipes which have most likely damaged the partition framing and bearing plate, floor sheathing and floor joists.

4. There is a lack of ventilation for the crawl space. There are no vents on the north and south sides. There were two vents on the west side, but they have been covered and/or blocked (refer to Photograph No. 100). There were two vents on the east side of the building, but one has long been boarded over (refer to Photograph No. 74. This lack of ventilation can lead to excessive moisture that can support the growth of fungi that cause rot. Yellow and white powders observed on several of the wood floor members are likely such fungi. Refer to Photograph No. 96.

5. In the area under the floor that was visible, there is insect damage in some of the wood joists and sheathing. Refer to Photographs Nos. 96, 97 and 98.

**Miscellaneous**

1. The masonry fence on the west property line is approximately 5 to 6 feet high. The writer used a metal detector on a sample are of the fence and did not find any reinforcing steel (vertical or horizontal). On the top surface of the fence, the tops of grout filled concrete clock cells are visible (no concrete tie beam or cap).

There are several cracks in this fence. There is one particularly wide crack near the middle of its length. No reinforcement was visible in the crack. Refer to Photographs Nos. 50 through 54. The narrower cracks are likely primarily due to material shrinkage, and the wider crack is likely due to some soil settlement as well as material shrinkage. This fence lacks appropriate strength for its height.

2. The masonry/metal fences along the east and south property lines also have numerous cracks and areas of missing stucco. Portions of the south perimeter fence are leaning outward. The leaning is likely due to soil settlement. Refer to Photographs Nos. 1, 2, 3, 55, 56, 57, 70, 71 and 72. This fence lacks appropriate strength for its height.

**Areas of General Structural Deficiency**

1. In general, all of the structural wood framing members which were observed (wall and floor) appear to be generally undersized. Based on the writer's extensive knowledge of older building in Florida, it is assumed that roof and ceiling framing members are also generally undersized.

2. The connections of the structural wood framing members throughout the building are accomplished with only a few nails. In general, the connections throughout the building appear to be inadequate, particularly relative to wind resistance.

3. The entire roof area is drained by only one scupper. There are no overflow scuppers/drains.

4. The attic space is inadequately vented.

5. The floor crawl space is inadequately vented.

6. The exterior wall cladding consists only of stucco on wood lath. Such cladding does not provide appropriate wind pressure and debris impact resistance. Of course, it also doesn't provide an appropriate vapor, moisture or thermal barrier.

7. The majority of the existing exterior stucco has been replaced with rather crude workmanship.

8. In what could be observed, there is a considerable amount of structural wood deterioration due to rot and damage due to insects. Further damage and deterioration will no doubt be revealed upon the removal of concealing materials.

9. The existing floor elevation is assumed to be well below the FEMA-designated Base Flood Elevation of +8.0 ft. N.G.V.D. and another foot further below the Design Flood Elevation of +9.0 ft. N.G.V.D.

## CONCLUSIONS

It is clear that any reasonable renovation of this building would need to be classified as a Substantial Structural Alteration under Alteration Level 3. Building Code requirements for this classification, for structural repair and replacement, and for roof structure enhancements due to re-roofing will require that most of the structural systems be brought into compliance with the strength requirements of the current Building Code.

**It will not be possible to correct the existing damages, deterioration, and deficiencies; meet the current Building Code strength requirements; and provide reasonably appropriate safety and performance without dismantling the entire building and reconstructing it. Extensive reconstruction will likely result in the loss of the building's status as "contributing" to the historical district. In that case, it will be necessary to meet current flood design criteria, including setting the floor elevation at +9.0 ft. N.G.V.D.**

**PHOTOGRAPH NO. 1**

**PHOTOGRAPH NO. 2**

**PHOTOGRAPH NO. 3**

**PHOTOGRAPH NO. 4**

**PHOTOGRAPH NO. 5**

**PHOTOGRAPH NO. 6**

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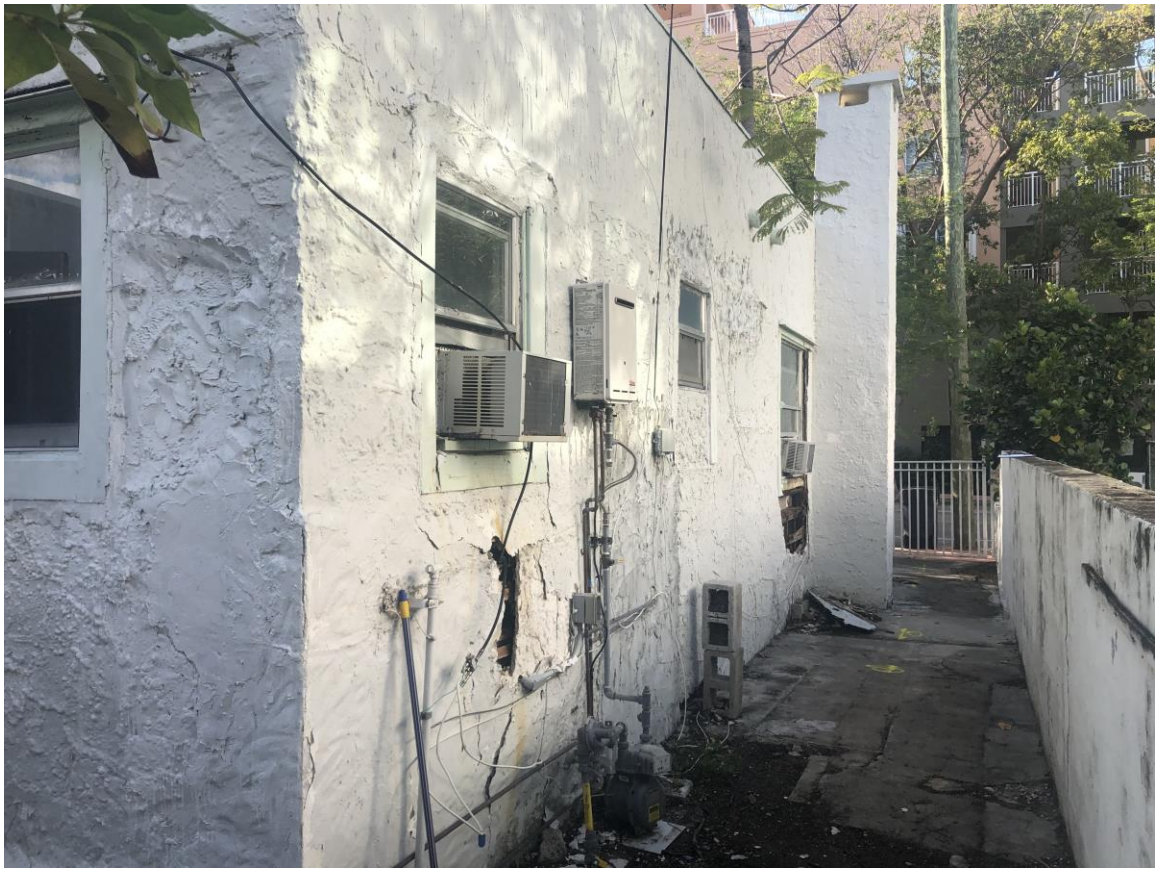

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