

June 7, 2023

City of Miami Beach

The City of Miami Beach Building Department
1700 Convention Center Drive
Miami Beach, Florida 33139

Subject: Coastal Code Compliance Review Relative to the Single-Family Residence located at 7801 Atlantic Way, City of Miami Beach, Miami Dade County, FL

To Whom it May Concern,

On behalf of our Client, 7801 AW, LLC, this is to provide a summary of Moffatt & Nichol's (M&N) findings relative to the coastal code compliance of the existing and proposed single-family residence located at 7801 Atlantic Way. The following summarizes our review of the existing structure and the proposed conceptual design relative to compliance with Florida Building Code (FBC) Sections 3109 and 1612, as well as ASCE 24.

Existing Structure

Built in 1935, the existing structure is a two-story single-family residence with a first finished floor elevation of 13 feet NGVD. This first finished floor includes habitable uses seaward of the Coastal Construction Control Line (CCCL), which includes kitchen, dining, family living room, etc. At the rear of the property there is a patio area and concrete retaining wall at an elevation of ~12 feet NGVD. In addition, there is a garage at the northwest corner of the existing structure at an elevation of ~10.66 feet NGVD.

Habitable structures located wholly or partially seaward of the CCCL are required to comply with Florida Building Code (FBC) §3109 - Structures Seaward of the CCCL. FBC §3109.3.3, states that "*Habitable structures* shall be elevated and supported on piles or columns" in compliance with ASCE 24. Additionally, it states that stem walls and shallow foundations are not permitted. The forensic evaluation report by Ganem Consulting Engineering (Ganem) based on field work conducted February 23, 2023, states "...based on the results obtained from the tests carried out, a total demolition of the structure is recommended. **Violation of any code failure status means a complete code violation and it is not possible to bring the existing structure into compliance.**"

Furthermore, FBC §3109.3.3 states that "the bottom of the *lowest horizontal structural member* of the *lowest floor* shall be at or above the 100-year storm elevation determined by the Florida Department of Environmental Protection (FDEP) in the report titled "One-Hundred-Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999)." Per the FDEP report, 100-year storm elevation for structures sited between FDEP Reference Monuments R-001 and R-050 (the existing structure is locating near Reference Monument DA-R-039) within Miami-Dade County is 18.2 feet NGVD. The lowest horizontal member of the first habitable floor for the existing residence should be located above 18.2 feet NGVD. As previously noted, the first habitable floor elevation of the existing structure is 13 feet NGVD. This indicates non-compliance with FBC §3109.3.3 and the FDEP one-hundred-year storm elevation requirements for habitable structures located seaward of the CCCL. The forensic evaluation report

by Ganem states "It is not feasible to modify the entire structural system of the house to raise the elevation of the second level and the roof level due to limitations within the foundation system." The Ganem report further concludes: "Implementing a comprehensive renovation by raising the elevation of all floors in the building is not feasible."

In addition, FBC §3109.3.4 requires walls below the 100-year storm elevation and located seaward of the CCCL to "comply with the breakaway wall requirements of ASCE 24 §4.6 using the lesser of the flood loads specified by §3109.3.1.". ASCE 24 §4.6 requires that "breakaway walls and other similar non-load-bearing elements...shall be designed and constructed to fail under base flood or lesser conditions, without imparting additional flood loads to the foundation or superstructure and without producing debris damage to the structure or adjacent structures." Pursuant to Ganem's structural evaluation, the walls below the FDEP published wave crest elevation are not designed to break away under the associated 100-year storm forces and compliance "would necessitate the complete demolition and reconstruction of the entire structural system."

Proposed Structure

FBC 3109

The proposed single-family residence is a three-story structure with the ground floor elevation a minimum of 9'-10" NGVD and the first finished floor elevation of 21'-5" NGVD. This first finished floor includes habitable uses seaward of the CCCL that consist of a kitchen, dining area, family living room, bedrooms, etc. As stated above, the first habitable floor of the proposed residence must be located above the FDEP published 100-year storm elevation (wave crest elevation) of 18.2 feet NGVD to comply with FBC §3109.3.3. The proposed structure does comply with FBC §3109.3.3 and the FDEP 100-hundred-year storm elevation requirements for habitable structures located seaward of the CCCL.

The proposed structure includes uses below the 100-year storm elevation: include parking, gym, sauna, laundry room, bathroom, and storage areas. According to § 3109.2, "For the purpose of § 3109.3.4, use of enclosures above... the elevation specified in ASCE 24 (DFE) and below the 100-year storm elevation, includes, but is not limited to use for... *storage, building access...toilet rooms and bathrooms, cabanas, recreational spaces such as gyms and card rooms, commercial service/storage/back-of-house facilities; and uses of a similar nature that are not spaces for living, sleeping or cooking.*" The uses proposed below the WCE at the first level are in compliance with the acceptable uses and are also consistent with the historical application of the code.

It is understood that walls above the eroded profile and below the FDEP published WCE, seaward of the CCCL, must be designed to breakaway. The proposed structural design will be designed to in compliance with to breakaway under the base flood conditions as required in FBC §3109.3.4.

FEMA / FBC R322 and/or 1612

[Figure 1](#) below shows the effective flood zone designations for the Project site, which include X and AE-8. The effective AE-8 flood zone is at the western edge of the property boundary. If the proposed structure lies partially within the AE-8 flood zone, the current design is in compliance with FBC §1612, which requires the finish floor to be elevated one foot above the base flood elevation of 8 feet NGVD. This includes the siting of the mechanical and electrical equipment.

However, it is our understanding that the design team and ownership are exploring options to keep the proposed structure wholly outside of the AE flood zone, which would mean that the proposed structure would be wholly within an

unshaded X zone. Note that an unshaded X zone is an “area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.”



FIGURE 1. FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 12086C0326L (SEPTEMBER 11, 2009).

Conclusions

Given the above-noted conditions, the existing residence is not compliant with special design criteria for habitable structures located seaward of the CCCL, found within FBC §3109. This puts inhabitants in a less safe situation than a code-compliant structure. The existing residence is also not compliant with ASCE 24 §4.6, potentially creating unsafe conditions during a storm event including increased potential for life/safety, property and environmental impacts associated with debris, scour, and/or erosion. Ganem's report concluded “It is not possible to remodel the house to be [compliant] with the above-mentioned regulations and be resilient to sea level rise and flooding. Therefore, new construction is required.” The proposed new single-family residence has been designed to comply with all relevant coastal code requirements.

Thank you for your assistance. Should have any questions or require additional information, please do not hesitate to contact me at (786) 725-4183 or lshepherd@moffattnichol.com.

Sincerely,

MOFFATT & NICHOL

Laura Shepherd
Senior Environmental Project Manager

LMS:CJB