OPTIMUS STRUCTURAL DESIGN LLC
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July 15, 2025

Attn: Rene Gonzalez
RENE GONZALEZ ARCHITECTS
T. 305.762.5895
www.renegonzalezarchitects.com

RE: Existing Building at 336 Meridian,
Miami Beach, Florida 33139

Dear Rene:

This report is based on our field observations made on June 11, 2025; existing concrete testing report prepared by NV5 Inc. dated June 19, 2025; thorough review of existing conditions; available original drawings for the buildings, and available information regarding the project.

The purpose of the site visit was to gather as much information as possible to aid in our structural engineering evaluation of the existing 2-story structure, to observe existing concrete testing performed by NV5 at the selected random locations, and to develop approach to save the existing façade of the 2-story structure and integrate it into the new project design.

The original building was built somewhere around 1930s. Some of the drawings related to the original construction (from almost 90 years ago) were available for our review and use. It must be noted however that existing drawings were almost impossible to read, we made every attempt to interpret the information shown on these drawings to the best of our ability. Survey of the property was provided for our reference, showing the layout of the building and floor elevations.

We have included pictures and other support documents as part of this report, showing current condition of the existing structural framing on the interior and exterior, concentrating on the existing façade which will remain as part of the proposed new project scope.

1. **Existing structural framing description**

   The main buildings on the property are existing 2-story and 1-story structures. At this time the 2-story building is unoccupied. The first level and second level elevated floor construction consists of wood

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joists spanning between exterior CMU walls and interior wood load bearing walls. Wood T&G sheathing is applied over wood joists. Crawl space was observed below the ground level framing.

The ground level and second level framing is covered with finishes such as wood floors, tiles, etc. In some areas wood floors and wood joist framing at ground level and second level had severe damage due to wood rot, water intrusion and age of the building. It was also observed that the ground level elevation in the original construction areas is well below the current flood elevation by approximately 4 to 7 feet, and almost at the elevation of the future crown of road elevation. Below is the graphical presentation of the base flood elevation versus the existing elevation of ground level, which potentially can be exposed to several feet of water when flooding conditions occur in the future. It must be noted that the existing structure has not been designed to withstand potential flooding conditions with water level being several feet above the top of level 1. The potential flooding will have detrimental effect on the existing building from the structural stand point, and also will make it inhabitable during the flood event due to life safety concerns.

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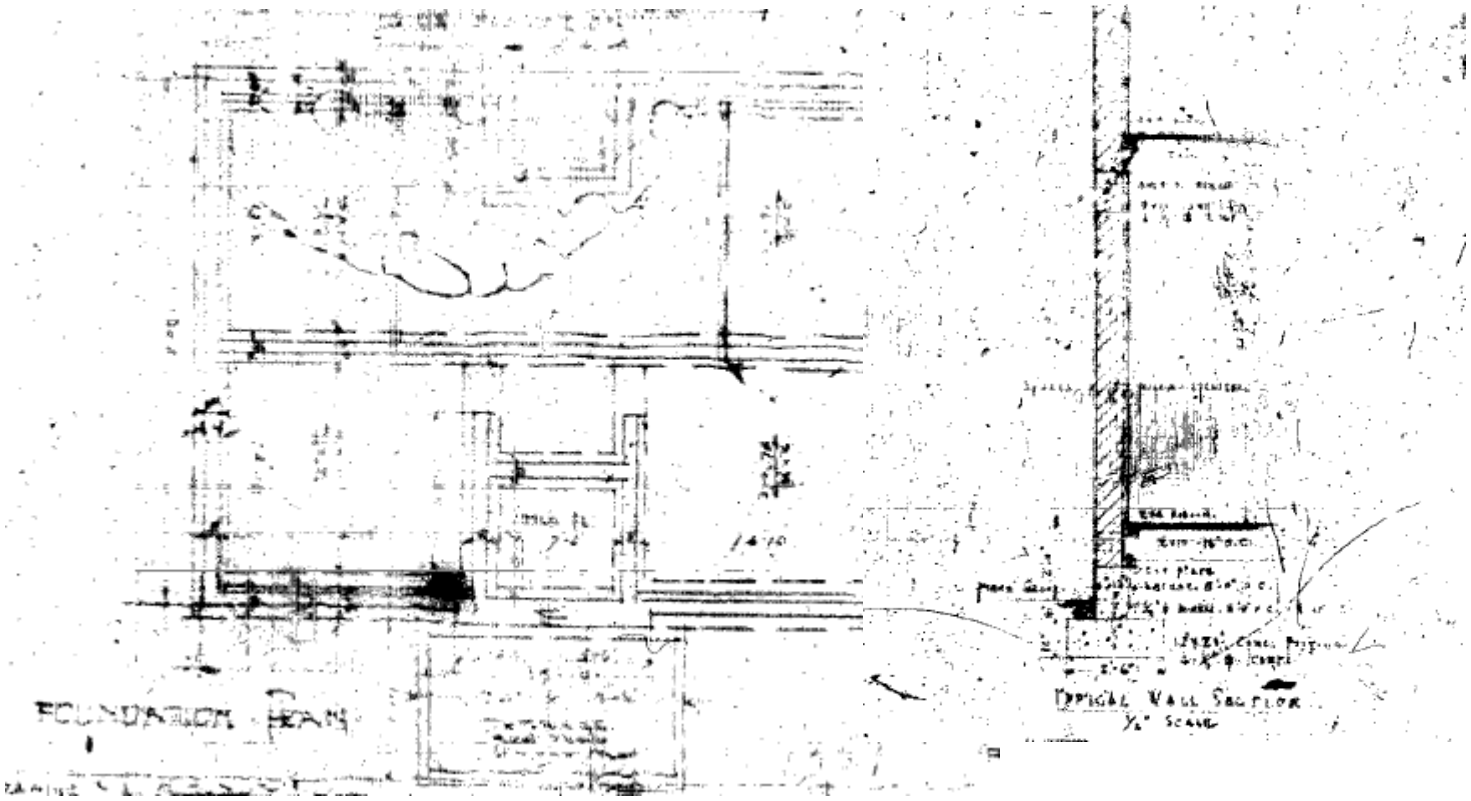
Existing foundations were not visible during our inspection. Based on the available drawings from the original design / construction, project location and similar structures in the area, it is our belief that the existing 2-story and 1-story buildings are supported on concrete spread footings.



The roof framing consists of existing timber framing, which is supported on the interior load bearing walls and exterior load bearing walls. We did not observe tie downs for the roof framing at the exterior and interior walls.

The exterior walls were observed to be CMU construction, with tie beam at second level and tie columns at the corners. The CMU walls do not have vertical reinforcement, reinforcement at window and door openings, etc. These walls also do not have horizontal joint reinforcement which is a code requirement for the current construction, and is placed at every other course. Thus the exterior CMU walls will require structural retrofit which will consist of reinforcement of the wall cells with new reinforcement, placed in trenched cells.

Stucco at the exterior walls had signs of cracking, possible delamination in some areas. These cracks in some areas extended thru the exterior CMU walls.

During our site visit, we observed concrete cores taken at several locations to determine concrete compressive strength of the existing concrete. No exposed reinforcement was observed during our site visit.

2. Testing of existing concrete compressive strength

Based on the concrete core tests performed by NV5 Inc. , we followed "ACI 214.4R-03 Guide for Obtaining Cores and Interpreting Compressive Strength Results" (attached to this report) to calculate the compressive strength to use in the analysis of the existing structure. This resulted in existing concrete compressive strength of 2,088 psi.
The concrete core testing was performed in random locations throughout the building façade which will remain as part of the proposed project.

3. Concerns regarding the existing structural framing and proposed retrofit approach

- The current compressive strength of the existing concrete is quite low, especially if compared to the current required concrete compressive strength of 5,000 psi minimum. Thus the existing façade will require structural retrofit to withstand the required wind loads, flood loads and also carry limited gravity loads due to its own self-weight.

- Chloride ion content represents another concern for the existing concrete structures. Chlorides cause concrete spalling and deterioration of existing concrete, and are typically present in high levels in the existing older structures in the Miami Beach area, due to close proximity to the water and original construction techniques. We propose to treat the existing concrete elements and CMU walls of the façade with a protective coating similar to Spray Lock based on colloidal silica technology, which increases chloride resistance, reduces permeability, and becomes a permanent, internal protection that does not fade or dissipate over time as it becomes an integral part of the concrete matrix.

- The existing exterior CMU walls will require reinforcement installed at 24" minimum with additional reinforcement at all corners, intersections and at each window and door opening. All cells will require to be grouted from inside or outside of the wall. Existing window openings will required to be reinforced by installation of two bars in grouted cells at each side of each opening. Some larger openings may require new concrete tie columns. The typical CMU wall retrofit detail is below for reference.

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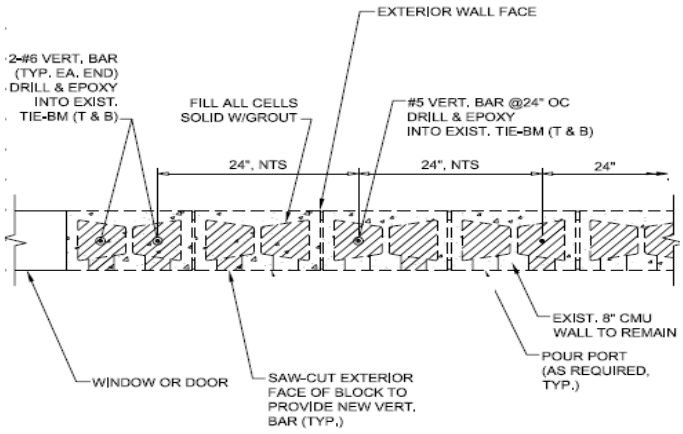

- The existing elevation of Ground level is at elevation +6.21 feet NGVD based on the provided survey. The base flood elevation plus freeboard is at +10 to +13 feet NGVD. The existing ground level framing which consists of wood joists does not have any waterproofing below, neither was it built to resist the required hydrostatic pressure based on the current flood elevation. The existing wood framing at both elevated levels and roof will be removed as part of the proposed project scope. The remaining façade structure will be braced as part of the new project by tying it to the new structure, as well as reinforcement of the façade with the steel framing as shown on the attached sketches.

- Roof framing at the original construction area does not have required tie downs to the structure. The structure itself is not adequate to accommodate the required forces due to wind uplift as per current code requirements. The existing wood framing at roof will be removed as part of the proposed project scope. The remaining façade structure will be braced as part of the new project by tying it to the new structure, as well as reinforcement of the façade with the steel framing as shown on the attached sketches.

- The existing foundations at the original construction area were not designed and constructed to resist the required hydrostatic and wind uplift forces based on the current code requirements. Structural retrofit will be required for existing foundations, by adding additions helical piles on inside or outside of the façade, to provide additional support for the remaining facade structure.

- The exterior stucco will have to be repaired at all delaminating areas and possibly redone upon completion of all noted above repairs. All stucco must have the required control joints to prevent cracking. Control joints were not observed at the existing façade of the existing structure.

- Existing windows and shutters do not provide proper protection for the openings. Signs of previous water intrusion were observed in many locations throughout the residence. All windows and doors will be removed as part of the new design scope for this project.

Based on the above, to the best of our knowledge, belief and professional judgement, the existing façade can be

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preserved and integrated into the new project design after the removal of the existing wood framing at levels 1, 2 and roof, provided that the façade structure is properly braced as per suggested bracing concept and reinforced as per proposed retrofit scheme for the remaining facade structure.

The content of this report is only for the existing condition observed at the above referenced location. The conclusions and recommendations of this report are based on Optimus Structural Design LLC interpretation of the existing conditions at the time of writing. As a routine matter, in order to avoid possible misunderstanding, nothing in this report should be construed directly or indirectly as a guarantee for any portion of the structure.

We trust that this report is responsive to your needs. Should you have any questions regarding the report contents, please feel free to contact this office at any time.

Respectfully submitted,

Optimus Structural Design LLC

Tanya Homleid P.E.

Tanya Homleid
c=US, o=Optimus Structural Design LLC, dnQualifier=A01410D0000018D6537ED290006241D, cn=Tanya Homleid
2025.07.15 22:13:41 -04'00'
2021.001.20135

SIGNED: _____
Tanya Homleid, P.E.

TANYA HOMLEID LICENSE No. 61706 STATE OF FLORIDA PROFESSIONAL ENGINEER

REG. NO. STATE: FL. 61706

COMPANY: Optimus Structural Design LLC

ADDRESS: 7850 NW 146 Street, Suite 305
Miami Lakes, Florida 33016

S.I. NO: # 7021292

Tanya Homleid, State of Florida, Professional Engineer, License No. 61706.
This item has been digitally signed and sealed by Tanya Homleid, PE.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.
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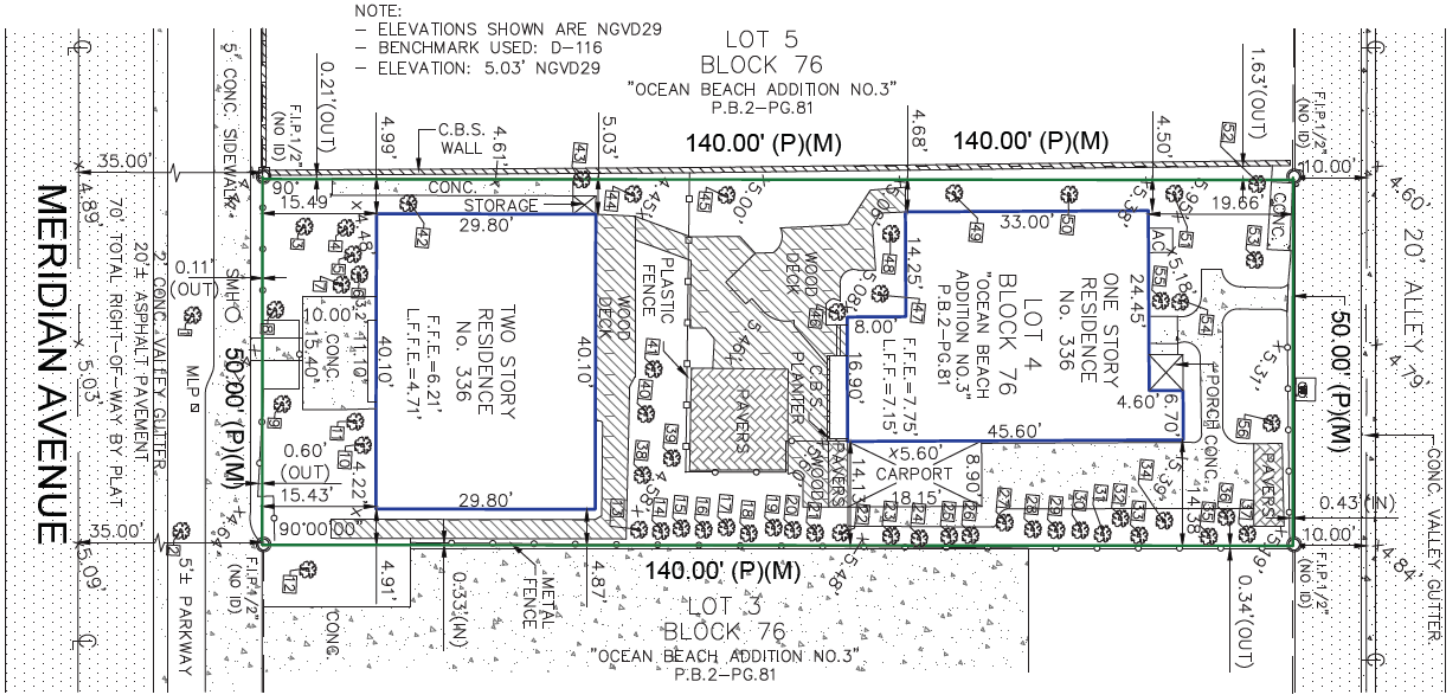
Attachments:

a. Survey of the existing 2-story and 1-story buildings:



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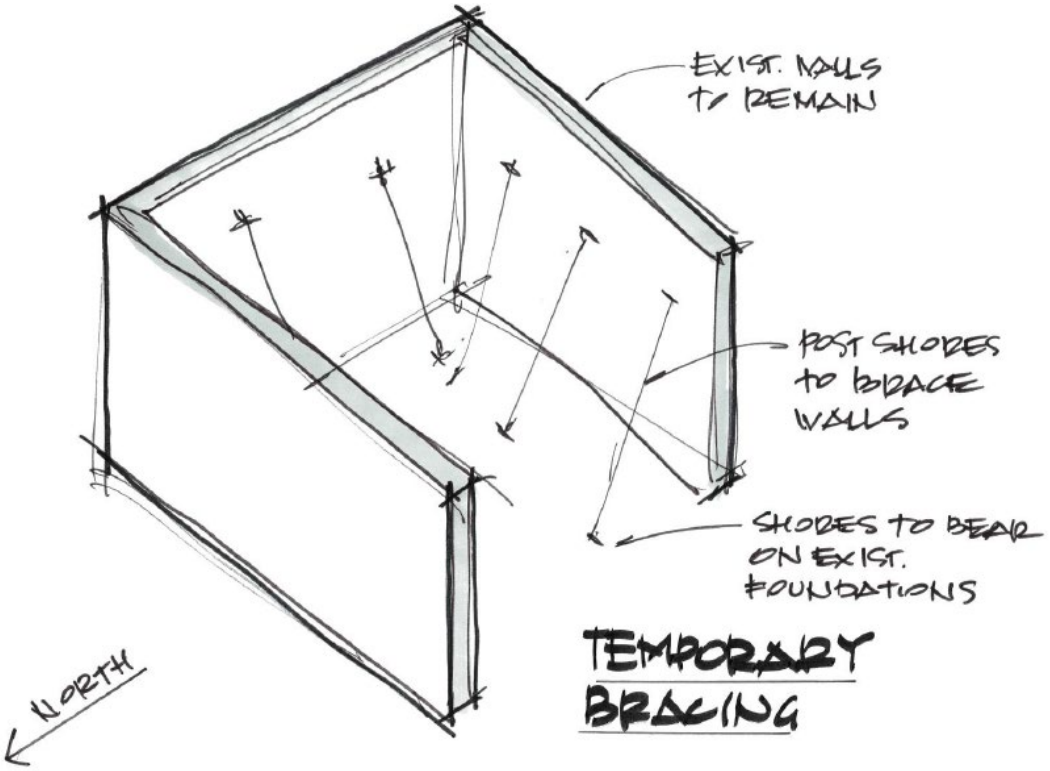
b. Proposed facade bracing:



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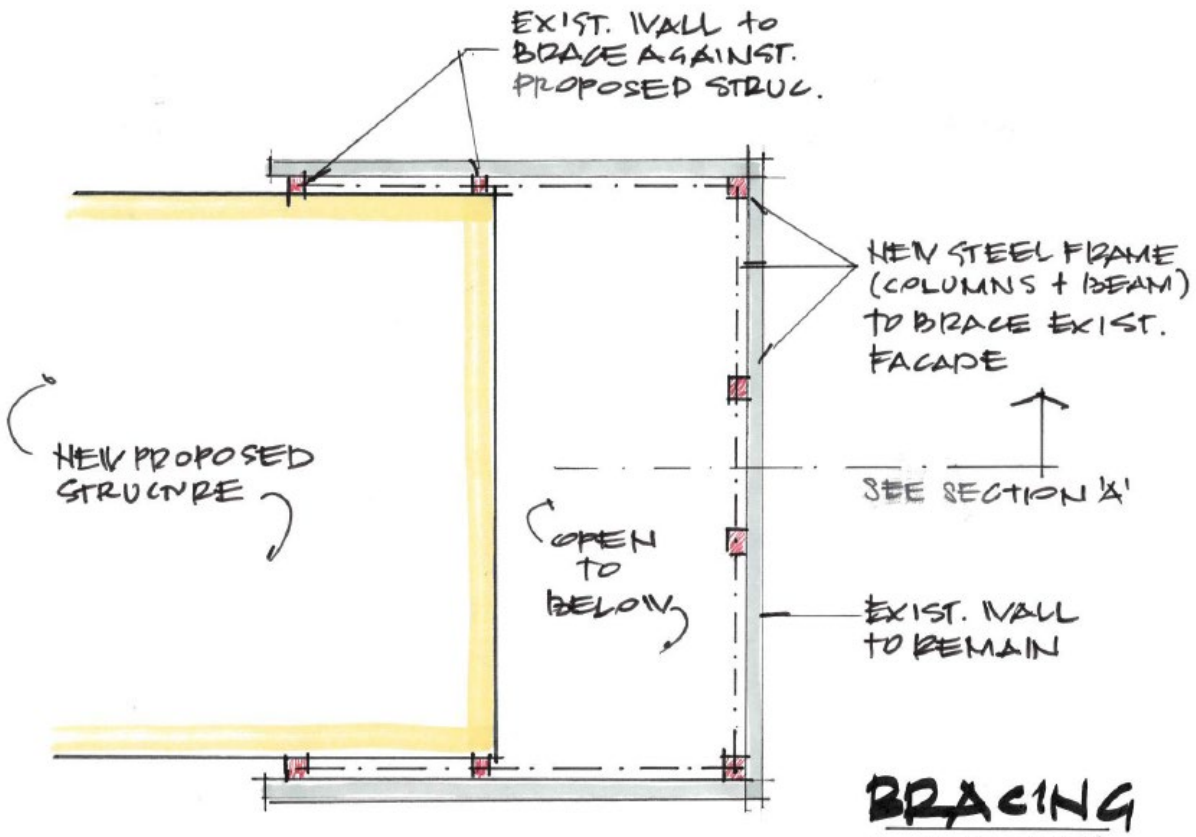
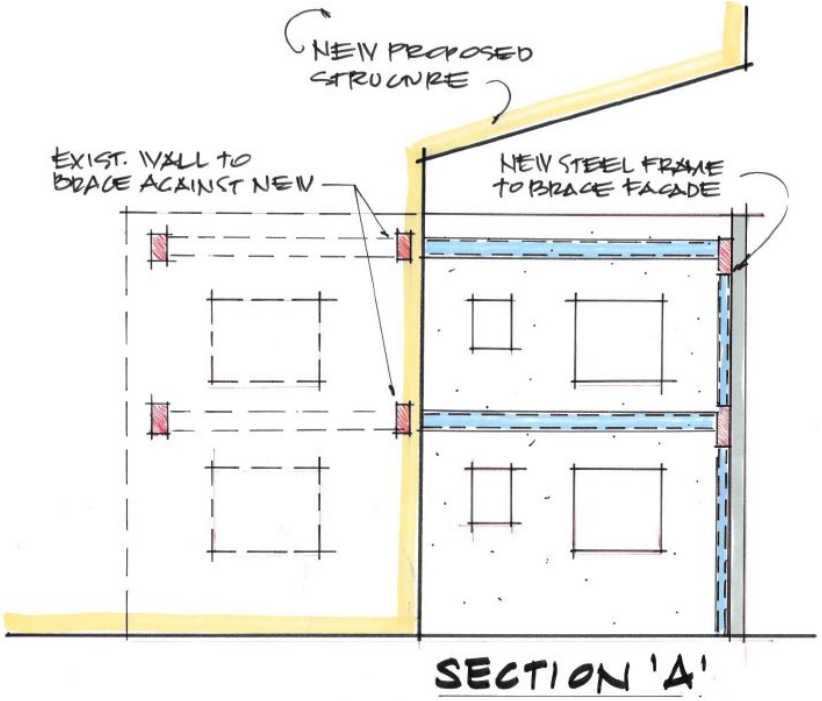


BRACING LAYOUT



SECTION 'A'

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c. Concrete testing report by NV5:

CORES COMPRESSIVE STRENGTH REPORT

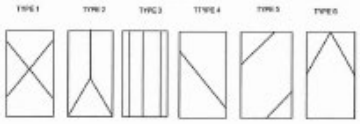
NV5, INC.
14486 COMMERCE WAY, MIAMI LAKES FL 33016
TELEPHONE NO. 305-666-3563 FAX NO.: 305-666-3069

PROJECT NAME: 336 Meridian Residence — PROJECT NUMBER: 18876 — DATE: 6/19/2025
CLIENT: Tiffani and Todd Engel — SAMPLE BY: NV5 — SET NO.: 1
CONTRACTOR: Optimus Structural Design — SPECIFIED STRENGTH: Not Provided — PAGE NO.: 1
TEST METHOD: In general accordance with ASTM C42-20 — CONCRETE SUPPLIER: Not Provided

Core	Core Location	Structural Element	Core Dimensions				Compressive Strength				Fracture Type	Maximum Nominal Aggregate Size	Pour Date	Core Date	Preparation Date	Test Date	Core Weight (lbs.)	Core Unit Weight (lbs./ft³)
			Diameter (inches)	Lengths: Original (inches)	Lengths: Trimmed & Ground (inches)	Cross Sectional Area (sq.inches)	Maximum Load (lbs.)	L/D	Correction Factor	Approx. Compressive Strength (psi)								
1	North East Corner East side	Column	3.67	9.32	4.93	10.59	20,972	1.34	0.94	1,860	4	1 1/4	N/P	6/11/2025	6/12/2025	6/17/2025	4.00	132.47
2	South East Corner , South Side	Column	3.67	8.97	5.74	10.59	20,840	1.56	0.96	1,900	4	1 1/3	N/P	6/11/2025	6/12/2025	6/17/2025	4.62	131.47
3	East Wall	Tie Beam	3.67	8.36	5.29	10.59	22,189	1.44	0.95	2,000	4	1 2/7	N/P	6/11/2025	6/12/2025	6/17/2025	4.29	132.10
4	North Wall	Tie Beam	3.67	8.14	6.26	10.59	28,094	1.70	0.98	2,590	6	1 1/2	NP	6/11/2025	6/12/2025	6/17/2025	5.15	134.32

Notes
1 According to ACI 318 and Note 4 of ASTM C42, "The concrete represented by the cores is considered structurally adequate if the average strength of three cores is at least 85% of the specified strength and no single core strength is less than 75% of the specified strength". Compressive strength results should be reviewed by the Engineer of Record for acceptance.
2 Direction of load application is Parallel and moisture condition is Isolated.
3 According to ASTM C42-20 – "Allow the cores to remain in the sealed plastic bags or nonabsorbent containers for at least 5 days after last being wetted and before testing, unless stipulated otherwise by the specifier of tests".
4 Concrete pour date was not provided in the field and at the time of the core compressive strength tests.
5 N/P - Not Provided
6 Cores 1 and 2 Had Crack Before compressive strength testing

FRACTURE TYPE



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Alfredo Budik, P.E
Senior Engineer
Florida License No. 83884
6/19/25

NV5


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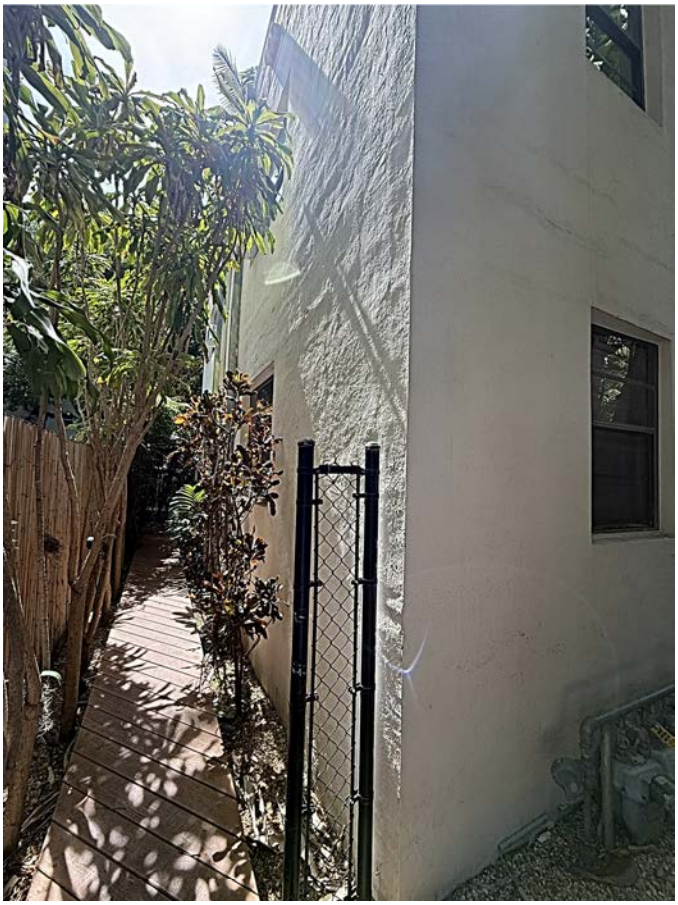


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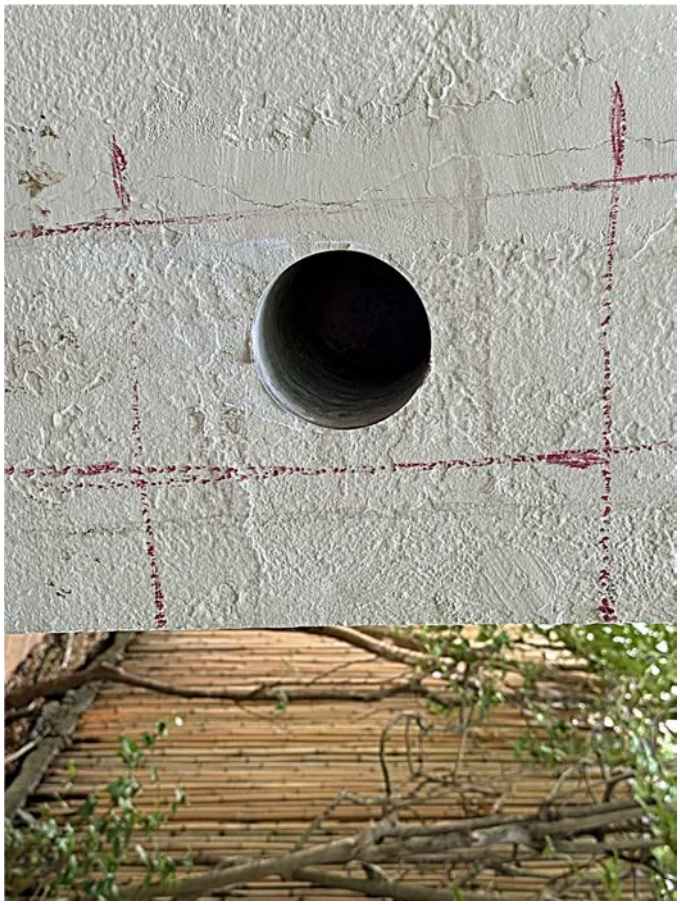


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