



OPTIMUS STRUCTURAL DESIGN LLC
CONSULTING ENGINEERS

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January 31, 2017

Attn: Thomas Weber, Architect
The Weber Studio, PLLC
104 Crandon Blvd, Suite 414
Key Biscayne, FL 33149
Tel: 305.361.9935
Fax: 305.361.9986

RE: Existing Residence at 1045 Pennsylvania Avenue
Miami Beach, Florida 33139

Dear Mr. Weber:

This report is based on our field observations made on December 21, 2016; review of the proposed structural alterations; visual observations of the existing conditions 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 residence and garage / guest house structures.

The original residence was built somewhere around 1920s, and there were additions / alterations done previously to the original structure based on the obtained microfilm. It appears that the last structural alteration was done in 2003.

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.

1. Existing structural framing description

The main residence and guest house / garage are existing two story buildings. At this time the buildings are unoccupied. The elevated floor construction consists of wood joists spanning between interior CMU and wood load bearing walls. Wood T&G sheathing is applied over wood joists. Wood joists are also supported on the exterior load bearing masonry walls.



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The roof framing consists of existing timber framing, which is supported on the interior load bearing walls and exterior load bearing walls.

Existing framing at Ground level consists of wood joist framing and concrete slab in some areas. The existing foundations appear to be pile foundations based on the information obtained from the microfilm. During the 2003 alterations some of the foundations were increased. The original construction foundations from 1920s were not observed, however based on other similar buildings in the Miami Beach areas we assume that the original construction may have utilized wood piles as foundations.

The exterior walls were observed to be CMU construction, at the original construction area as well as additions. The walls at the original construction areas 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.

Some concrete columns were observed at the interior of the original construction areas, and at some exterior locations.

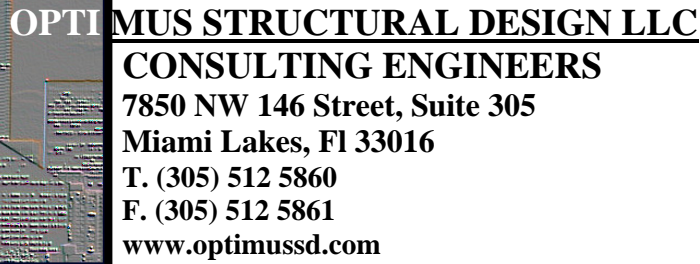
The overall structural framing of the subject property was found to be in fair condition, with expected deterioration which can be repaired to restore structural integrity of the framing.

2. Proposed alterations

Based on the architectural drawings we received from your office, it is our understanding that the interior of both buildings will be significantly altered and most likely removed. The exterior walls of both buildings will be preserved, reinforced as required and connected to the new interior framing which will be designed based on the new architectural layout and based on the current Florida Building Code requirements.

3. Proposed strengthening of the existing structural framing

- The existing concrete compressive strength maybe low based on the age of the buildings. Structural retrofit is required which will include reinforcing of the existing exterior CMU walls; repairs of the existing columns and beams and spalled areas will be required as well.
- 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



2-#6 VERT. BAR
(TYP. EA. END)
DRILL & EPOXY
INTO EXIST.
TIE-BM (T & B)

FILL ALL CELLS
SOLID W/GROUT

24", NTS

24", NTS

24"

EXTERIOR WALL FACE

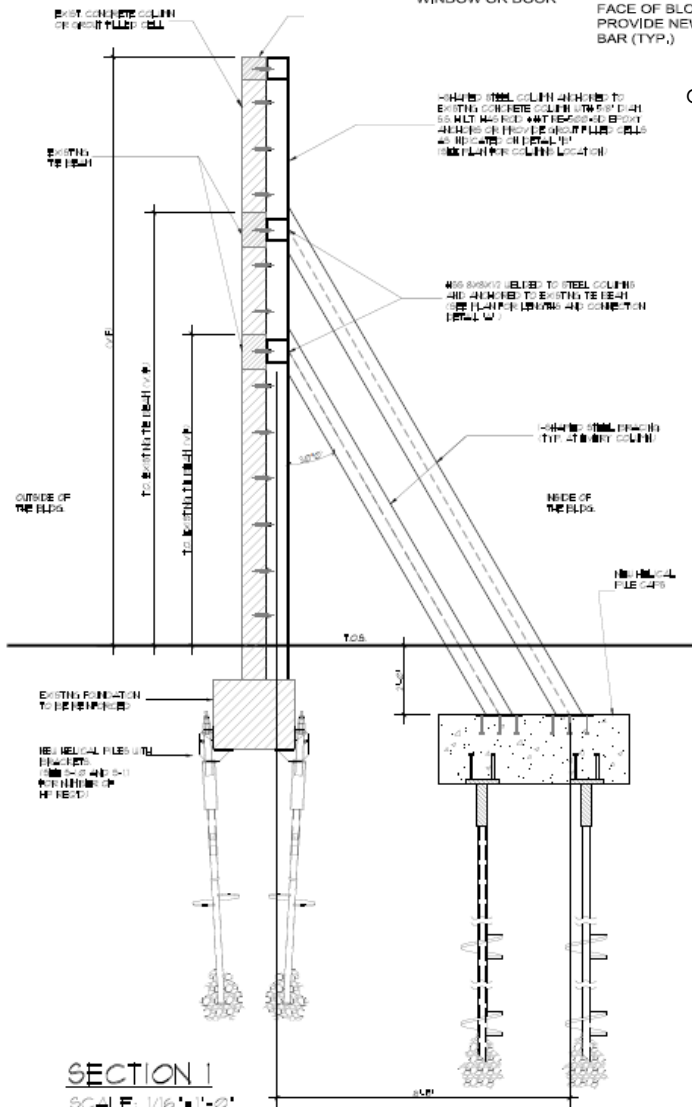
#5 VERT. BAR @24" OC
DRILL & EPOXY
INTO EXIST. TIE-BM (T & B)

WINDOW OR DOOR

SAW-CUT EXTERIOR
FACE OF BLOCK TO
PROVIDE NEW VERT.
BAR (TYP.)

EXIST. 8" CMU
WALL TO REMAIN

POUR PORT
(AS REQUIRED,
TYP.)



- The existing façade framing will require shoring / bracing during the demolition of the interior framing and until the new framing is constructed at the second floor and roof and reconnected to the façade. Below is the schematic section showing the façade bracing concept which will be implemented in this project:



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- The existing framing of the Ground level appears to be above the base flood elevation. The existing ground level framing will most likely be replaced due to proposed alteration at the interior of the buildings which will affect the current framing.
- Second floor framing and roof framing at the original construction areas will be effected by the proposed interior alterations and will most likely be completely replaced with the new framing, designed as per current Florida Building Code requirements
- The existing foundations at the original construction area were not designed and constructed as per current code requirements. Structural retrofit will be required for existing foundations, by adding additions augercast or helical piles inside the house based on the geotechnical engineer recommendations.
- 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.
- All windows will be replaced and installed within the reinforced openings.

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.

To the best of our knowledge and ability, this report represents an accurate appraisal of the present condition of the building based upon careful evaluation of observed conditions, to the extent reasonably possible.

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.



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PICTURES FOR REFERENCE







