



# A. T. DESIGNS, INC.

CIVIL / STRUCTURAL ENGINEERING AND PROJECT MANAGEMENT SERVICES

November 15, 2021

Board of Directors  
c/o **WATERGLADES 300 CONDOMINIUM  
ASSOCIATION, INC.**  
5540 North Ocean Drive  
Singer Island, Florida 33404

Re: Structural Evaluation and Recertification Report  
Waterglades 300 Condominium  
Singer Island Florida, Florida

Dear Board Members:

A.T. Designs, Inc. was retained to conduct a comprehensive structural evaluation and assessment investigation of the Association's Building to identify potential structural integrity and/or deterioration issues associated with the structural elements of the Building. The inspection was conducted in accordance with the standards established by the Miami-Dade and Broward County 40-year Re-Certification protocols and requirements. As of the date of this re-certification report, no standard and/or investigation protocols have been established by either Riviera Beach and/or Palm Beach County.

The findings contained in this structural evaluation report shall follow the prescribed format as outlined in the Miami-Dade and Broward County 40-year Re-Certification Program. Multiple inspections have been conducted by this firm to observe, identify, and evaluate the present condition of the observable portions of the interior and exterior structural elements of the Building. In addition, where access was limited, such as individual unit exterior balconies, a minimum percentage of randomly selected balconies were investigated and evaluated to identify structural and/or deterioration issues associated with the concrete slabs, structurally supporting elements, and glazing components.

The following reporting format is per the requirements of the Miami-Dade and Broward County 40-year Re-Certification requirements. Our findings of our investigation are as follows;

1. Background:

- a. Engagement: A.T. Designs, Inc., was hired in August 2021.



- b. Scope of work: To conduct a structural evaluation and assessment of the Association's Building in accordance with re-certification standard established by Miami-Dade and Broward County 40-year Re-Certification Program.

2. Project Information/Type of Construction:

- a. Date of Certificate of Occupancy (CO): Approximately 1975
- b. Description of Structure: The Building is a twenty-five (25) story structure with four (4) individual condominium units per floor for a total of 100 individual units. The first floor consists of an open lobby area, meeting and storage rooms, and equipment room. The roof level of the Building contains the elevator equipment/stairwell structure and the air conditioner chiller. There are also two (2) different free standing walls, one which encloses the cooling tower and the opposing side of the elevator/stair structure. A continuous parapet wall extends around the complete perimeter of the roof area.
- c. Type of Construction: The Building was constructed with steel reinforced concrete vertical columns, shear walls, and horizontal slabs which comprise the main structural elements. The columns lead down to the foundation system which consists of prestressed concrete piles and reinforced concrete pile caps. At the center of the Building there is an elevator shaft and stairwell which extends upward from the ground floor up to the roof level. The walls of the individual floors consist of stucco covered, in-fill reinforced masonry block. The masonry openings have hurricane compliant/impact rated sliding glass doors, fixed windows and single hung windows. The perimeters of the individual balconies consist of reinforced masonry kneewall with handrails affixed to the top of the kneewalls.

3. Areas of Investigation:

- a. Roof Level Structures: The roof level structures consist of an approximate eight (8 ft) foot tall, reinforced masonry block and stucco covered, perimeter parapet wall. The parapet walls are bolstered by the presence of buttress like structures, which provide additional lateral support for the parapet walls. There are two interconnecting one and two story structures that contain the elevator equipment and stairwell, which is constructed of reinforced concrete and stucco covered masonry block. The cooling tower support structure consists of reinforced concrete pedestals and beams and is surrounded by a freestanding wall. There are also free standing



walls, adjacent to the one story structure, on the opposite side of the cooling tower walls

- b. **Stairwell Structure:** The stairwell structure which runs continuously through the Building from the ground floor up to the roof level. The stairwell structure consists of the cast-in-place reinforced concrete and reinforced masonry block.
- c. **Roof Membrane System:** The existing built-up, coated modified bitumen roof membrane system shows signs of aging but there are no apparent signs of structural distress or failure.
- d. **Exterior Façade of Building:** The exterior façade of the building consists of reinforced concrete columns and slabs with stuccoed covered concrete masonry block and balcony knee walls. There are four (4) individual unit balconies per floor and there is a combination of both sliding glass doors and fixed glazing on the balconies. The units also contain a single hung and fixed window wall window type system configuration, mulled together along the unit separation walls.
- e. **Exterior Glazing:** The individual unit glazing components are located on the balcony areas and within the master and guest bedrooms. The glazing systems consist of sliding glass doors and fixed windows on the individual unit balconies and single hung and fixed window window-wall type systems mulled together at the unit separation at each level. All windows and sliding glass doors have been replaced with compliant hurricane resistant products.
- f. **Randomly Selected Balconies:** Randomly selected reinforced concrete balconies contain a perimeter kneewall, which is constructed with reinforced masonry block with a railing that sits atop of the kneewalls. The said balconies were previously subjected to a comprehensive visual and echo sounding investigation of the floor slab, walls, and ceiling areas. These areas were investigated to identify the presence of spalling and/or deterioration.
- g. **Ground Level Columns and Beams, Foundation Elements:** The assessable and visible ground floor reinforced concrete columns, beams, and slabs were inspected from both the interior and exterior of the Building. Access to these elements on the interior of the building was achieved through the various storage room areas and the mechanical room, which was accessed from the exterior of the Building. The investigation and assessment of the piles and pile caps were not performed as part of the investigation.



Note: ATD had previously completed a column rehabilitation project which included the exposure, excavation, repair, waterproofing, and re-stuccoing of the exterior vertical column surfaces, down to the top of the exposed pile cap.

#### 4. Investigation/Evaluation Methodologies Employed:

- a. Visual, Non-Destructive Assessment: This technique includes conducting a thorough visual inspection of the structural elements and noting any observable condition such as cracking, spalling, peeling, etc.
- b. Acoustical and/or Echo Sounding: This technique includes the tapping of a surfaces and/or substrate areas with a hammer, chain dragging, acoustical device, etc. to determine if the resonation of sound is altered as a result of hidden abnormality and/or condition, such as delamination and/or spalling, within the lattice of the substrate material.
- c. Destructive Testing: This technique includes the partial and/or demolition of the subject area to determine if the material in question has sustained damage and/or degradation of the internal components, such as the oxidation of steel reinforcement within concrete lattice and/or structure.
- d. Other Testing Methodologies: (Not employed as part of our Structural Assessment)
  - i. X-Ray or Ground Penetrating (GPR) Imaging:
  - ii. Thermal Imaging (Thermography):
  - iii. Capacitance (Potential) Testing:
  - iv. Half-cell Potential
  - v. Nuclear Moisture Testing:
  - vi. Structural Load Testing:

#### 5. Observations/Findings:

- a. Roof Level Structures:
  - i. Perimeter Parapet Walls and Support Structures: There was little evidence of structural degradation and/or integrity issues. The only observed condition was isolated stucco cracking and delamination.
  - ii. Elevator and Stairwell Structure: There is presently no evidence of structural degradation and/or integrity issues. The only observed condition was isolated stucco cracking and delamination.



- iii. Cooling Tower Support Structures: There are multiple observed locations of spalling, rust staining, and deterioration of the reinforced concrete support elements, which need to be addressed and repaired to restore the integrity of the said elements.
  - iv. Free Standing Walls: There is presently no evidence of structural degradation and/or integrity issues. The only observed condition was isolated cracking and delamination of the stucco surfaces.
- b. Stairwell Structure: The stairwells contained only isolated conditions of cracking, minor deterioration, and moisture staining from an apparent leaking pipe.
  - c. Exterior Façade of Building: The painted stucco façade of the Building contained limited observable areas of cracking. Because the exterior façade of the Building was not directly accessed as part of our investigation, areas of delamination were not identified.
    - i. Exterior Glazing: The mulled together, hurricane rated window wall and single hung windows are generally in good condition. The issue we did observe was the fact that the applied sealants have weathered and are in need of replacement, which the Association has contemplated contacting a Contractor to replace the existing sealants.
  - d. Balconies: The unit balconies, which wrap around the individual units, have been randomly inspected in the past and as part of this investigation to identify areas of deterioration and structural integrity issues. The Association has in the past performed isolated remedial concrete restoration repairs and waterproofing to an undocumented number unit balcony slab areas. Prior to this investigation and inspection, A.T. Designs, Inc. had completed a comprehensive investigation of the individual unit balconies areas and identified areas of spalling and deterioration of the reinforced concrete elements that need to be addressed and repaired. The presence of a waterproof membrane on the balcony surfaces could not be verified as part of our investigation.
  - e. First Floor Columns and Beams: The interior and exterior reinforced concrete first floor columns were inspected in an attempt to identify areas of degradation and/or spalling. Access to the interior columns was through the ground floor storage and equipment rooms. There were no areas of deterioration of the said column elements observed during our investigation.



- i. The Association has previously completed a significant column reconstruction and restoration project to address and repair the identified areas of concrete spalling and deterioration.
  - f. Foundation: The below grade portion of the reinforced concrete columns and pile cap foundations were not investigated as part of this structural evaluation. A.T. Designs, Inc., previously investigated, repaired and waterproofed the stand alone, exterior columns, which contained areas of identifiable delaminated stucco.
    - i. The Waterglades Property Association (POA) recently undertook a comprehensive project to install a new steel sheet pile seawall with a reinforced concrete cap. The seawall was installed along the properties "dune line", immediately adjacent to the Building. The installation of the steel sheet pile seawall was required as a result of the long-term erosion of the dune/beach. No detrimental effects of the long-term erosion and/or the construction of the seawall were observed during our investigation.
  - g. The Ground Floor Glazing: The ground floor, hurricane rated storefront type glazing was inspected and there were no identified issues noted.
6. Conclusion(s):
- a. The inspection and evaluation of the reinforced concrete structural elements of the Waterglades 300 Condominium Building revealed that there were isolated areas of spalling, deterioration, and degradation. The identified areas of deterioration and spalling are as follows;
    - i. The reinforced concrete chiller support beams and structures have sustained significant oxidation and spalling. These conditions need to be addressed and repaired to restore the structural integrity of the support members.
    - ii. Spalling and deterioration of the equipment mounts in the ground floor equipment room will need to be addressed and repaired.
    - iii. The isolated areas of spalling and deterioration identified in this structural assessment report and ATD's prior investigation of the individual unit balconies need to be addressed and repaired in accordance with the American Concrete Institute (ACI) and the International Concrete Repair Institute (ICRI) guidelines and standards. Our recommendation is to waterproof the horizontal



concrete surfaces to provide long-term protection against the infiltration of moisture into concrete surfaces.

- iv. The glazing sealants, although not actually considered a structural element, need to be further inspected and evaluated to determine if they are properly performing and, if required, replaced with new high grade urethane sealants to insure the long-term performance of the said glazing elements.
  - As of the date of this investigation, the Association has not engaged a contractor to remove and replace the existing sealant on the bedroom window-wall system.
- v. Because many of the individual tile covered unit balconies, have not ever been protected with a waterproof membrane, there is an ongoing concern that the long-term effects of the salt laden moisture will continue to collect and migrate into the reinforced concrete balcony slabs, and overtime, will cause the internal steel reinforcement to oxidize, spalling the concrete. It is strongly recommended that all horizontal balcony surfaces be fully waterproofed after the implementation of the pending comprehensive balcony concrete restoration project to provide long-term protection against the infiltration of salt laden moisture into the reinforced concrete slab.

#### 7. Recommendations:

- a. All identified areas of concrete spalling and deterioration needs to be addressed and repaired in accordance American Concrete Institute (ACI) and International Concrete Repair Institute (ICRI) standards, to restore the structural integrity to the damaged reinforced concrete element.
- b. The focus of the concrete restoration should be on the air conditioner chiller support beams and columns and a comprehensive balcony repair and concrete restoration project to the previously identified individual units balconies.
- c. The replacement of sealants on the exterior window wall system needs to be implemented to ensure the long-term performance of the existing window wall glazing systems. As of the conclusion of this report, the Association had not engaged a contractor to perform sealant replacement work.



8. Certification:

I hereby certify that the conditions identified during this structural evaluation and recertification investigation are true and have been observed and evaluated as to their extent and severity, and based upon the conditions observed, I hereby certify, to the best of my knowledge, belief, and engineering certainties, the elements which comprise the Waterglades 300 Condominium structure are sound, with the only concerns being isolated to the specific items outlined in this report.

The sole purpose of this investigation of the structural elements of the Association's Buildings and/or structures is to identify conditions of damage and distress, in conformance with accepted engineering and industry standards. The findings contained herein, are for identification and evaluation purposes only and the repair of those identified conditions and/or elements is the sole responsibility of the Association.

A.T. Designs, Inc. reserves the right to revise or update any of the information, observations, conclusions, and/or recommendations as conditions change and/or additional information becomes available. The information contained in this document may not be relied upon, used by, or referenced by, any third party without written consent of A.T. Designs, Inc.

Respectfully submitted,  
A.T. Designs, Inc.  
No. 47992

Timothy S. Marshall, P.E.  
Florida

Enclosure(s)

cc File





**EXEMPLARY  
PHOTOGRAPHS  
OF  
OBSERVED  
CONDITIONS**



Photo 1: Cracking and spalling of the concrete header of the ground floor equipment room.



Photo 2: Apparent moisture staining on the perimeter wall of the stairwell.



Photo 3: Apparent moisture staining on the perimeter wall of the stairwell.

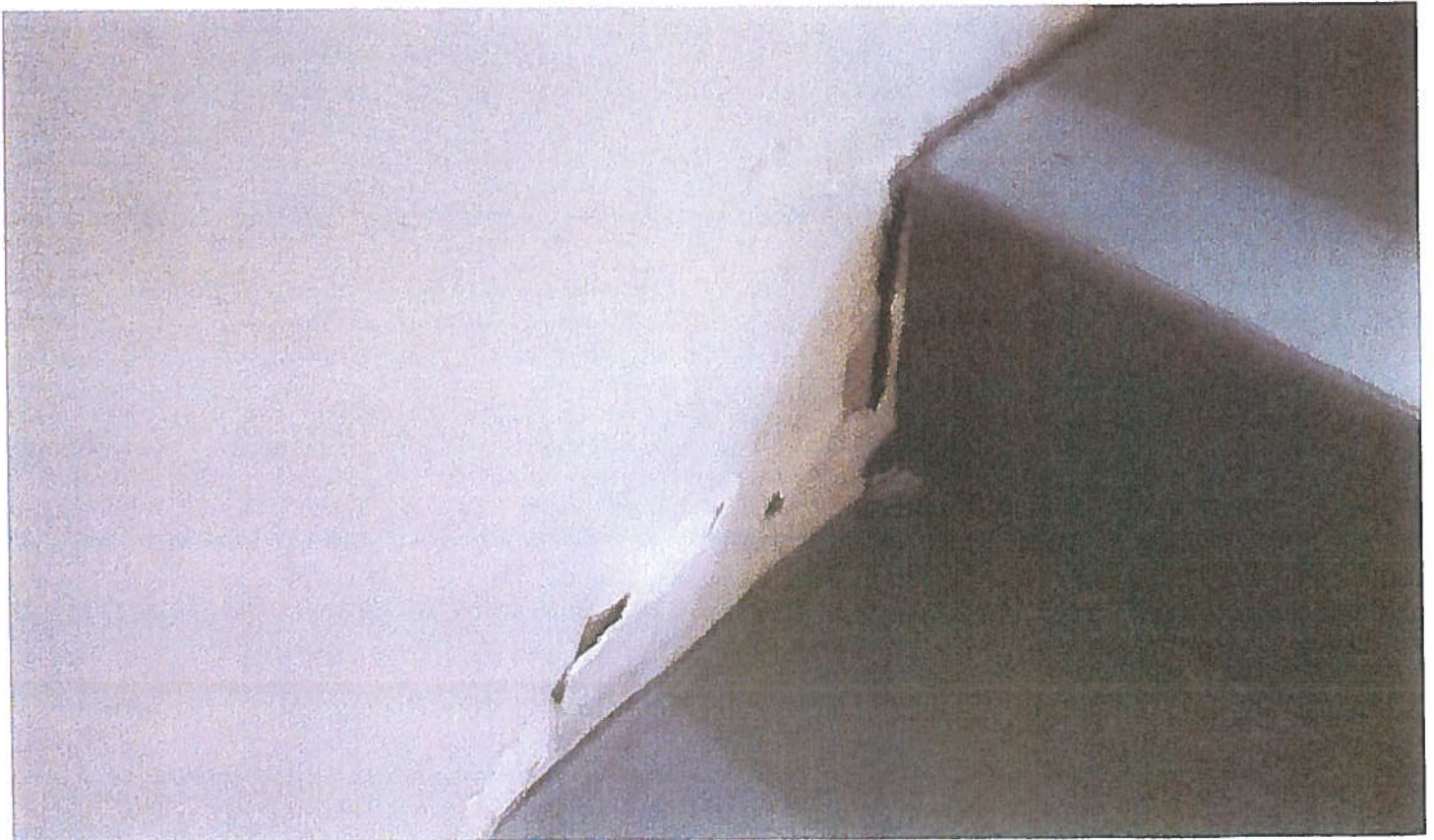


Photo 4: Cracking and slight displacement of the stairs adjacent to the masonry wall.



Photo 5: Apparent moisture staining on the perimeter wall of the stairwell.



Photo 6: Apparent moisture staining on the perimeter wall of the stairwell.