

Wiss, Janney, Elstner Associates, Inc.

2 Trap Falls Road, Suite 502 Shelton, Connecticut 06484 203.944.9424 tel www.wje.com

August 4, 2022

Louis Casolo City of Stamford Engineering Bureau 888 Washington Boulevard The Stamford, CT 06901

Opus Harbor Point: 900 Pacific St, Stamford, CT Visual Survey

WJE No. 2022.0759

Dear Mr. Casolo:

Pursuant with our proposal dated April 6, 2022, and at the request of the Mayor of Stamford, Connecticut's Office, Wiss, Janney, Elstner Associates, Inc. (WJE) has completed our limited assessment of the above referenced property. The following is our report on the matter.

BACKGROUND

Following the partial collapse of the 5th floor plaza level post-tensioned concrete slab at the Allure in Stamford, CT, the mayor of Stamford, Ms. Caroline Simmons asked WJE to perform limited assessments of additional properties that have been developed by Building and Land Technology (BLT) in Stamford utilizing similar construction, similar designs and/or similar construction teams. The scope of these assessments was outlined in a March 25, 2022 letter issued to BLT by Mayor Simmons.

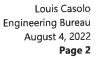
DESCRIPTION OF STRUCTURE

900 Pacific St, also known as P3 is a 15-story residential structure with a single basement level. It was built ca. 2019. Levels Basement through Level 3 primarily consist of parking with some apartments and amenity spaces along the north, east and west sides. Level 4 primarily consists of an exterior amenities terrace with a pool and planters. Some apartments are provided along the east elevation. The overall dimensions of Levels B-4 are approximately 207 feet north/south by 210 feet east/west. Floor to floor heights are between 9.75 feet and 12 feet. Above Level 4, the residential tower continues up to Level 15. The residential tower has overall dimensions of approximately 200 feet north/south by 75 feet east/west. Typical floor heights in the tower are 9.75 feet.

The building structure is founded on pile caps that are supported by pressure injected piles. Floors 1-3 consist of 8 inch thick post-tensioned, cast-in-place, concrete flat plates¹. The flat plates have uniformly spaced draped² post tensioning monostrand tendons that typically span in the east/west direction at 3 feet on center. Banded, draped monostrand tendons span in the north/south direction at the column

¹ A "flat plate" is a reinforced concrete slab without beams or drop panels.

² Draped tendons refers to the elevation profile of the strands which are typically located high in the slab at column lines and low in the slab at midspans.





lines. Conventional reinforcing is also provided with a continuous bottom mat in both directions and top bars in both directions at the columns. Additionally, stud rails³ are provided at some, but not all of the columns. Column spaces vary from approximately 12.25 feet to 28 feet in the north/south direction and approximately 3.5 feet to 26.5 feet in the east/west direction. The columns consist of cast-in-place concrete and are conventionally reinforced.

At the 4th floor level where the amenities deck is provided, the slab thickness ranges from a 10 inch to 14 inch conventionally reinforced slab instead of post tensioned. The slab below the tower at the 4th floor consists of a 7.5 inch thick flat plate post tensioned slab between gridlines T20 through T28 and increases to a 9 in thick post tensioned flat plate slab between gridlines T28 to approximately T30. The flat plates have uniformly spaced draped post tensioning monostand tendons that typically span in the east/west direction at 3 feet on center. Banded, draped, monstrand tendons span in the north/south direction at the column lines. Conventional reinforcing is also provided with a continuous bottom mat in both directions and top bars in both directions at the columns. Additionally, stud rails are provided at some but not all of the columns.

The slabs at the remainder of the tower (floors 5 to 15) consist of a 7.5 inch thick flat plate post tensioned slab between gridlines T20 through T28 and increases to a 9 inch thick post tensioned flat plate slab between gridlines T28 to approximately T30. At the 14th floor, the slab increases to 10 inches thick between gridlines T28 and T29. The flat plates have uniformly spaced draped post tensioning monostrand tendons that typically span in the east/west direction at 3 feet on center. The live end anchors alternate between the east and west elevations. Undulating, banded, monostrand tendons span in the north/south direction at the column lines. Conventional reinforcing is also provided with a continuous bottom mat in both directions and top bars in both directions at the columns. Additionally, stud rails are provided at some but not all of the columns. Post-tensioned cantilever balconies are provided on all elevations.

The building is clad with an exterior insulation and finishing system (EIFS) and the building has a flat roof (Figures 1-4). The building was designed by EDI International (EDI) and the structural engineer of record is Henderson Rogers Structural Engineers (HRSE).

DOCUMENTS REVIEWED

The following documents were reviewed by WJE to gather a basic understanding of the building design and construction:

- Architectural Drawings, As Built Set, issued by EDI on April 20, 2022.
- Structural Drawings issued by HRSE for permit on July 16, 2019.
- Post Tensioning Shop Drawings issued by CCL dated February 6, 2020.
- Rebar Shop Drawings issued by CMC Rebar dated November 24, 2020.
- No special inspections reports were provided to WJE for this building.

³ Stud rails are welded assemblies of steel strips and headed studs that are positioned around columns to enhance the punching shear strength of the slabs



Finally, WJE reviewed a report issued by Desimone Consulting Engineers entitled: "Opus Harbor Point (Bldg. P3)- On-Site Structural Assessment" dated May 9, 2022. The following is described in the report:

- Desimone conducted a visual assessment.
- The exposed garage structure was found to generally be in good condition.
- Shrinkage cracks were observed but are not of structural concern.
- The remainder of the residential spaces in the podium levels and tower levels as well as other interior occupied amenity and lobby spaces were covered by finishes. No visual indications of structural concern such as cracks in the finishes, cracks in the ceilings and walls, or perceptible excessive slab deflections at the first-floor lobby spaces and amenity spaces above were noted.
- Based on the on-site visual observations, Desimone did not observe any items of structural concern.
- Typical shrinkage cracks on the garage level slabs and foundation walls should be sealed as a general maintenance item and should be monitored on a regular basis to prevent future structural deterioration.
- Desimone apparently performed no calculations in support of their opinions.

OBSERVATIONS

On May 19, 2022, John Cocca, P.E., Hannah Rakowski, P.E., Chase Gallik, and Tom Fayomi performed a limited visual review of the building. Prior to our site visit, we reviewed the drawings to look for areas of structural anomalies such as steps in the slabs, large openings or other features that could create design or construction issues. During our visit, WJE visually reviewed the exposed structure within the parking garage, the 4th floor terrace and amenity spaces, 26 apartments within the tower and various halls and stairwells. Field sheets indicating the areas surveyed are provided in Appendix A. The following conditions were noted:

Garage

- Basement Level of garage appears in good condition no deleterious conditions were noted (Figure 5). A few hairline shrinkage cracks were noted at the underside of the 1st and 2nd floor slabs with efflorescence emanating from the cracks. Some of the cracks appear on either side of a construction joint. (Figures 6).
- The second Level of garage appears in good condition. WJE identified 3 broken tendons at the ramp in which the dead-end anchorage appears to have spalled the concrete after becoming de-tensioned (Figure 7). WJE notified Baker Concrete Construction (BCC) immediately. The condition was reviewed by HRSE and they issued a report on June 8, 2022 titled "Level 2 Pour 1 P1-22 and P1-24 Broken Tendons." The report indicated that analysis was performed by HRSE and CCL, the post-tensioning engineer, and both conclude that there is enough residual strength in the system that no repairs need to be performed at the 3 broken tendons. BCC patched the spalled areas of concrete.
- The third Level of garage appears in good condition. A leak near the pool was identified near a pipe penetration in the slab at the ramp from the second level to the third level (Figure 8).



WJE reviewed areas beneath the 4th floor terrace where the slab steps up or down changing elevation and found no deleterious conditions.

Теггасе

• WJE visually reviewed the amenity terrace at the 4th floor level and did not observe any cracking in finishes or excessive deflections that could be an indication of an underlying structural issue (Figures 9-11).

Tower/Interior Spaces

- WJE visually reviewed 26 apartments and all accessible public and amenities spaces. As part of our review, WJE was looking for cracks in the drywall finishes especially at doorways and floor to ceiling transitions that may be an indication of recent movement. Additionally, WJE was looking for separations in the trim or gaps in the trim that may indicate the presence of slab deflections. No deleterious conditions were noted at the reviewed areas (Figures 12-15).
- Elevator lobbies and corridors were visually inspected for similar cracks and separations. In some instances, the slab was exposed at the corridor; no deleterious conditions were noted at the reviewed areas (Figures 16).
- The north and south stair towers were also partially reviewed. At these locations, painted concrete shear wall are exposed. No cracking or deleterious conditions were noted at the reviewed areas (Figures 17).

Exterior

• WJE visually reviewed the exterior elevations of the building from grade, terraces of select apartments and from the 4th floor terrace. In general, WJE did not observe any cracking in the EIFS or exposed concrete that would be indicative of an underlying structural issue.

CONCLUSIONS

Based on our limited review of the provided documents and our visual assessment of the building, WJE did not identify any conditions that would be indicative of an underlying structural issue at the building at the time of our inspections.

RECOMMENDATIONS

Based on our review, WJE would offer the following recommendations to the owner to prolong the life of the structure and help to limit future maintenance.

- WJE would recommend routing and sealing the shrinkage cracks to prevent the ingress of air and water which could result in corrosion of the underlying steel and/or post tensioning.
- WJE would recommend repairing leaks emanating from the 4th level terrace to prevent premature deterioration of the concrete slab and underlying reinforcement.



The owner should consider applying a penetrating sealer to the parking levels or installing a traffic coating to protect the mild reinforcement from chloride laden water that get tracked into the garage from vehicles

If you have any questions, please feel free to contact us.

Sincerely,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.

John Cocca, P.E.

Associate Principal & Project Manager







Figure 1- Opus P3: East Elevation



Figure 2 - Opus P3: West Elevation





Figure 3- Opus P3: South Elevation



Figure 4- Opus P3: North Elevation





Figure 5- Basement Level of Garage in Good Condition



Figure 6- Level 1 - Parking Garage – Shrinkage cracks





Figure 7- Level 2 - Parking Garage – Broken PT strand



Figure 8- Level 3 – Parking Garage – Leaks at pipe penetrations near pool





Figure 9- Amenity Terrace



Figure 10- Amenity Terrace





Figure 11- Amenity Terrace



Figure 12- Unit 1307





Figure 13- Unit 1201



Figure 14- Unit 1112





Figure 15- Unit 806



Figure 16- Corridor

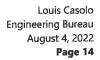






Figure 17- Stairway

