

## PROJECT ARYA HOTEL



### SERVICE POST-TENSION CABLE REPAIR PROJECT



This case study explores the repairs conducted on the concrete structure and post-tension cables within the garage of a Hotel Arya located at 2889 McFarlane Rd, Miami, FL.

### EXECUTIVE SUMMARY

The identified issues included protruding and broken post-tension cables, the coupling and post tension pocket were filled with grout and mortar, and significant concrete damage, particularly on the west side elevation. The repair work involved comprehensive solutions such as PT cable ramp, anchors, wedges, sheathing repairs, GPR scan, and the installation of a baker scaffold. The aim was to restore structural integrity and ensure the safety and longevity of the building.

### BACKGROUND

The project focuses on repairing the post-tension cables and damaged slab within the garage. Hotel Arya, a prominent hotel in Miami, FL, encountered structural issues in its parking garage. Concerns over structural integrity were prompted by noticeable damage to the concrete slab and post-tension cables. Urgent attention was required, highlighted by a post-tension cable protruding from the slab's edge, post tension pocket were filled with grout and mortar and broken cables underneath.

### CASE EVALUATION

During visual inspections, the following issues were identified:

- Post-tensioned cables protruding from concrete slabs.
- Broken post-tensioned cables observed beneath slabs.
- Concrete damages beneath slabs and adjacent masonry cladding walls.
- Post tension pocket were filled with grout and mortar



**April 4th, 2022**

City of Miami Building Department  
444 SW 2nd Avenue,  
Miami, FL 33130

Re: 2889 McFarlane Rd, Miami, FL 33133 – Visual Assessment Report.

Dear City Official:

Conemco Consultants, Inc. has been retained by Rafael De Miranda, Maintenance Engineer of the property located in 2889 McFarlane Rd, Miami, FL 33133 in order to provide a visual inspection for the existing damages present at the 7<sup>th</sup> Floor of the building.

As per inspection performed on March 29<sup>th</sup>, 2022, the following list summarizes the findings during our visual inspection as well as the recommendations:

1. Post tensioned cable was observed sticking out of the edge of 7<sup>th</sup> Floor concrete slab located on the West side elevation of the building. See pictures 1 through 4.
2. Broken post tensioned cables observed below 7<sup>th</sup> Floor concrete slab near the South side of the building. See pictures 5 through 7.
3. Concrete damages observed in the Southeast side of the building below 7<sup>th</sup> floor slab and masonry cladding wall. As per original structural drawings there is a post tensioned cable following the same shape of the overhead concrete slab damage that might indicate that the tendon is also compromised. See pictures 8 through 10.

Damages found indicate that some of the cables of a group of post tensioned tendons are broken and must be replaced. Complete shoring of the concrete slab should be provided two floors down before proceeding with the repairs. A Post tensioned cables repair company must be retained to perform these repairs.

**PURPOSE**

TITAN's observations are performed in general consideration of the guidelines of the various product manufacturers' written installation requirements, industry-accepted standards, repair protocol, and the specifications or recommendations of the manufacturers, unless otherwise documented. In addition, the installation was observed for general conformity with the project-approved submittals.

**SITE OBSERVATIONS**

On May 23<sup>rd</sup>, 2024, TITAN Professional Consulting Engineers, PLLC "TITAN" was retained by the Arya Hotel "Client" to inspect the repair of two (2) post-tension tendons. Titan reviewed a PT splice repair protocol, photos, videos, and a calibration certificate. The original Post Tension Drawings and Shop Drawings were NOT available for review.

TITAN verified the Stressing Jack matched the calibration certificate submitted (100413) on-site. The Jack was last calibrated on 02/07/2024 by Jorge Navarro from PTE Systems.

One of the replaced tendons was on the west side of the garage on the sixth floor. The coupling and post tension pocket were filled with grout and mortar during the observation. However, photos and videos of the process were shared by the contractor. The tendon appears to be 0.5" in diameter and the replaced length is approximately 150 linear feet. Strands were not visible on the coupling. The elongation of the cable appears to be of 11.. The anchors and burn ring do not appear corroded or with cracks. The grout inside the post pocket does not appear deficient. Sufficient coverage of the coupling was observed.

The second cable was a central stressing splice. The tendon appears to be 0.5" in diameter and the replaced length is approximately 30 linear feet. Replaced lent was spliced with existing cable on the north side at the location of the Machinery room and then splice and central stressing on the other end. The total length of that cable is approximately 180". The total elongation of the cable appears to be around 15"

**INSPECTION METHODOLOGY**

PT SPLICE DETAIL ONTOP – S&S by Titan Professional Engineers dated 06/09/2023

### PROPOSED SOLUTION

To address the identified issues, the following repairs and actions were proposed:

- Repair of broken post-tensioned cables including PT cable ramp, anchors, wedges, and sheathing repairs.
- Conduct Ground Penetrating Radar (GPR) scans to assess the extent of cable damages and verify structural integrity.
- Installation of Baker scaffold for safe access during repair works.
- Concrete repairs beneath damaged slabs and masonry cladding.
- Conduct PT Splice Detail Ontop

### RECOMMENDATION

It is recommended to proceed with the proposed repairs from EOR (Conemco) promptly to mitigate risks associated with compromised post-tensioned cables and concrete damages. Regular inspections and maintenance should be scheduled to monitor the condition of post-tensioned cables throughout the hotel property.

### THE IMPLEMENTATION PHASE INVOLVED:

- Engaging qualified contractors such as GroupLanDev experienced in post-tensioned cable repairs and concrete restoration.
- Adhering to safety protocols during repair activities, including the use of Baker scaffolds and GPR technology.

### CONCLUSION

The repairs at Hotel Arya aimed to restore structural integrity, ensuring safety and longevity of the garage infrastructure. Timely intervention prevented further deterioration and potential hazards to occupants and property.