



PROJECT PROFILE

Park Place Tower Parking Garage

Engineering Services for Rehabilitation | Chicago, IL



CLIENT

Park Place Tower
Condominium Association

BACKGROUND

Park Place Tower was constructed around 1969. A three-level parking garage is attached to the south side of the high-rise tower. The middle and roof levels of the garage consist of cast-in-place concrete slabs reinforced in two directions with unbonded mono-strand post-tensioning tendons. Although concrete and post-tensioning repairs had been completed in the early 1990s, no waterproofing membrane was installed to protect the repairs. Ongoing penetration of water and de-icing salts had driven aggressive corrosion of the embedded reinforcing bars and slab post-tensioning tendons, causing concrete deterioration and tendon failures.

Very little maintenance had been performed to the post-tensioned parking garage since the last major rehabilitation project was completed nearly twenty years earlier. Falling concrete, extensive concrete delamination and spalling around columns, and failing post-tensioning tendons bursting out of the slab prompted a request for a condition evaluation to determine the extent of the deterioration and to help the condominium association budget for a capital repair project. Repairs had to be phased to maintain use of the garage for residents.

SOLUTION

WJE performed a condition evaluation of the parking garage to quantify and prioritize the required repairs and to present various repair approaches and options to the Association. The Association chose to implement a comprehensive repair program to address the concrete deterioration, rehabilitate the post-tensioning system, and install a protective waterproofing system.

WJE designed repairs and provided construction observation and administration services over the 16 month construction period, including developing solutions for addressing unanticipated and hidden conditions as they were exposed. Over 400 tendons were repaired, resulting in the replacement of portions of nearly half of the post-tensioning tendons in the middle level floor slab and rebuilding over 230 severely corroded end anchors. The project was phased to safely perform the extensive post-tensioning repairs, while allowing residents uninterrupted use of the garage and maintaining access to the pool and recreational area on a portion of the garage roof level.

