



One East 15th Place is a 24-story concrete frame structure. The building facade consists of exposed concrete shear walls, and brick masonry veneer over cold-formed steel stud back-up walls. The top floor and penthouse structure are clad with an exterior insulation and finish system (EIFS). There are several tiers of cantilevered cast-in-place balconies throughout the building. The balcony guardrails consisted of pre-finished aluminum. The guardrail posts had been embedded in a grout fill in post pockets that had been cored through the balcony slabs. The balcony slabs were also covered with a traffic bearing membrane (TBM).

A few years after its original construction, a corner section of a balcony slab spalled prompting concerns regarding the structural integrity of the balcony slabs. BTC was retained to investigate the cause of the premature failure, and sporadic water leakage issues. The investigation indicated that the balcony guardrail post pocket filler had expanded in many locations due to exposure to moisture, and caused cracking and spalling of the surrounding concrete. The investigation also revealed several other deficiencies including early indications of freeze-thaw deterioration in balcony slab edges due to lack of proper air entrainment in the concrete, widespread cracking of masonry adjacent to balconies, deficiencies in the EIFS, splitting of balcony guardrail posts due to water infiltration, and cracking of concrete shear walls that allowed water infiltration.

BTC designed repairs to address the deficiencies. As part of the repairs, all balcony guardrail posts and slab edges were repaired. BTC's repair details allowed the retrofit of the existing guardrails. Replacement of the guardrails was only needed where the posts had split.

BTC also provided bidding assistance and construction phase services during the implementation of the repairs.

Project Name:
*Balcony and Facade Repairs
One East 15th Place Condominiums*

Project Location:
*One East 15th Place
Chicago, Illinois*

Client:
*One East 15th Place Condominium
Association*

Approximate Construction Cost:
\$1,023,000

Year Completed:
2007

Nature of Services:
*Forensic Investigation of Concrete
Balcony Failure, Repair Design, Bidding
Assistance, Construction Phase Services*

