



PROJECT PROFILE

860-880 Lake Shore Drive

Technical Consulting and Structural Engineering Design Services | Chicago, IL



CLIENT

Krueck & Sexton Architects/
860-880 Lake Shore Drive Trust

BACKGROUND

Ludwig Mies van der Rohe designed the pair of twenty-six-story residential buildings. Constructed from 1949 to 1951, the buildings were listed in the National Register of Historical Places in 1980 and designated a Chicago landmark in 1996. The building and garage structure consist of a concrete-encased steel frame and reinforced concrete floor slabs. Glass lobbies from both buildings are set back from the perimeter columns.

Having endured more than half a century of harsh Chicago weather, the buildings and plaza developed water leakage and severe deterioration that necessitated significant restoration. The client retained WJE to provide investigation, technical consulting, and structural engineering design services.



SOLUTION

WJE investigated the plaza paver system, garage structure, tower facades, lobby storefront walls, interior lobby finishes, and roofing systems. The investigation included visual examination and documentation of distress conditions and as-built details; limited field testing; and laboratory testing. The plaza systems exhibited widespread cracking, large areas of ponding water, upward displacement, bowing of the lobby storefront walls, and corrosion of embedded steel elements. WJE recommended that the existing travertine paving, setting bed, and waterproofing system be completely replaced with a new waterproofing and paving system and improved drainage characteristics. The plaza's poor drainage had caused deterioration of the lobby storefront, especially at its base. Structural members were removed and replaced, but most of the storefront's vintage stainless steel cladding was salvaged and reinstalled. For concrete repairs at the plaza structural deck, WJE recommended removal of delaminated concrete; sandblast cleaning of exposed concrete, structural steel, and reinforcing bars; coating of exposed steel beams and reinforcement with steel cover plates; and restoration of original concrete cross-sections using cast-in-place concrete. WJE also investigated the coating system on the towers' steel cladding. Given the budget and schedule, a compatible paint system was selected to overcoat the steel elements, with complete recoating of the facade deferred to coincide with future sealant replacement.