



PROJECT PROFILE

Soldier Field Stadium

Historic Concrete Repair and Structural Engineering Consulting | Chicago, IL



CLIENT

SMG
Chicago Park District

BACKGROUND

Soldier Field was originally constructed in 1925-26 and dedicated in honor of the soldiers of World War I. The colonnades were constructed of precast and cast-in-place concrete formulated to resemble granite. The concourses and grandstands were constructed of reinforced structural concrete. The original concrete has experienced deterioration over the years due primarily to corrosion of the embedded reinforcing steel from chlorides and carbonation. The stadium underwent a major rehabilitation in 2002-2003 in which the historic perimeter of the stadium was retained, but the interior was replaced with a new stadium structure.

WJE first became involved at Soldier Field in 1970 when the Chicago Bears relocated from Wrigley Field to Soldier Field. Since then, WJE has consulted to the Chicago Park District and stadium management (SMG) almost every year regarding issues surrounding structural performance and needed structural repairs. Highlights of this work are listed below.



SOLUTION

- 1970:** Structural investigation and load testing of original stands
- 1976-80:** Development and design of strengthening system for original seating bowl that allowed use for twenty plus years
- 1990-date:** Design and implementation of major shotcrete repair programs for overhead concrete, roughly every five years
- 2001-02:** Investigation of methods to slow deterioration of overhead concrete in colonnades and concourses; cathodic protection design and field trials of various corrosion mitigation systems; life-cycle cost analysis
- 2003-04:** Consulting to new stadium design team on rehabilitation of historic coffered ceilings of colonnades
- 2004-date:** Load ratings of existing structure for changes in use, new equipment, unusual stages or vehicle loads, signage, etc.
- 2004-date:** Evaluations and repair initiatives undertaken as needed, including facade concrete repairs, expansion joint repair/replacement, horseshoe promenade slab repairs, parking garage inspections and repairs, and davit testing
- 2008-10:** Investigation and repair design for split-out failures of double-tee beam stems in north parking garage
- 2006-date:** Annual close-up inspections of overhead concrete in public areas of colonnades and concourses
- 2017-date:** Annual close-up inspections and repairs for historic cast stone facade; cast stone repairs in phased approach
- Annually:** Annual structural inspections of stadium since 1970 and structural repair designs for conditions identified