

Purdue University Ross-Ade Stadium

Concrete Examination

West Lafayette, Indiana



CLIENT

Purdue University

STRUCTURE

Ross-Ade Stadium, the largest football stadium in Indiana with 62,500 seats, is located on the West Lafayette campus of Purdue University and home to the Purdue University Boilermaker football team. The stadium is constructed principally of concrete treads and risers, with elevated elements supported by steel framed rakers. Additional features include exterior brick masonry facade, press box and suite seating, and a Prescription Athletic Turf (P.A.T.) playing surface.

Construction of Ross-Ade Stadium was initiated in 1924 with subsequent additions made through present day. The original stadium had a seating capacity of 13,500.

CHALLENGE

Purdue University retained WJE to conduct a comprehensive examination of the concrete portions of Ross-Ade Stadium in order to address concerns regarding the long-term safety and serviceability of the stadium and determine the nature and extent of existing deterioration. The WJE investigations formed the precursor of a \$70 million major renovation and addition to the stadium, which was completed in 2003.

SCOPE OF SERVICE

- Detailed visual survey
- Material sampling and testing program
- Repair recommendations

SOLUTION

- Discovered that the concrete quality in the stadium was variable and highly susceptible to moisture-related, freeze-thaw deterioration
- Recommended the complete removal and reconstruction of the treads and risers for the north end zone and limited sideline areas
- Discovered that areas exhibiting less severe deterioration can be restored by removing and replacing limited areas of concrete
- Recommended the removal of the existing membrane and applying a silane surface sealer to extend the usable life of concrete tread and risers not being reconstructed
- Developed and prioritized repair and protection alternatives so that a multi-year rehabilitation program could be developed