

Bronco Stadium, Boise State University

Condition Assessment and Rehabilitation Design

Boise, Idaho



CLIENT

Boise State University/Idaho Department of Public Works

CHALLENGE

Deterioration in both older and relatively new reinforced concrete structural members prompted Boise State University and the Idaho Department of Public Works to question the condition of the Bronco Stadium concrete framing. Concerns regarding poorly performing expansion joint seals and long-term concrete durability were also expressed.

STRUCTURE

Bronco Stadium is the home of the Boise State University football team. The thirty-thousand-seat stadium, which consists primarily of reinforced concrete, is famous for its distinctive blue artificial turf. It was built in three stages; the original structure was built in 1970, and additions were completed in 1975 and 1997.

SOLUTION

Based on an examination of distressed areas and laboratory testing of representative concrete samples, WJE found that concrete deterioration in the 1997 addition was primarily the result of freeze-thaw damage due to inadequate air content. In the older east balcony, noted problems included concrete deterioration, failures of previous concrete repair patches, and widespread debonding of the urethane protective membrane. After evaluating the condition of the stadium and discussing the matter with the owner, we developed repair and maintenance strategies to address existing damage and concrete material deficiencies in the newer sections. Upon approval, we prepared construction documents that included repair of concrete deterioration, protection of exposed concrete surfaces, and replacement of failed expansion joint seals. Construction observation services were also provided.