HDC WICKERSHEIMER ENGINEERING

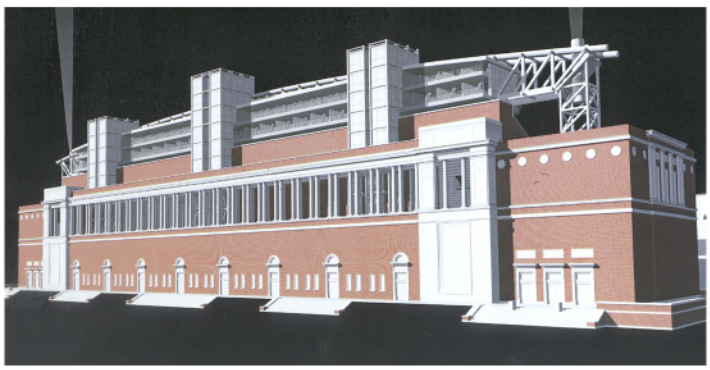
Structural Division - HDC Engineering, LLC

PROJECT PROFILE

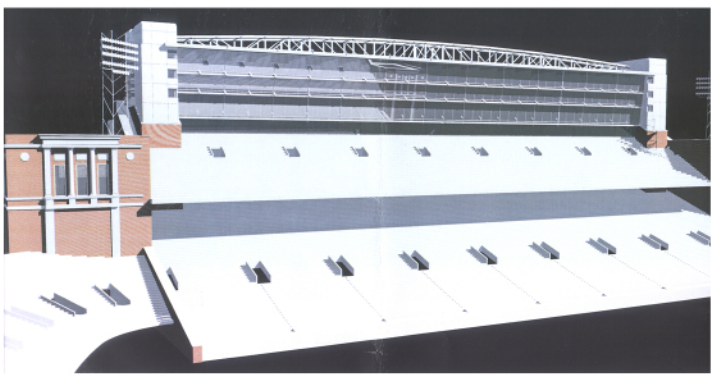
Memorial Stadium Pressbox/Suites Feasibility Study

University of Illinois
Champaign, Illinois

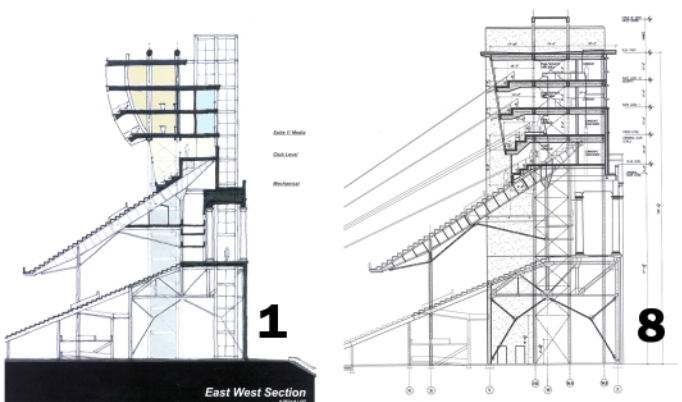
Client: University of Illinois, Division of Intercollegiate Athletics
Associate Architect: RATIO Architects, Inc
Cost and Construction Consultant: Turner Construction



Scheme 1 – Provides support within existing end towers and basically spans the length of the stadium.



Scheme 8 – Provides support inward from existing end towers to shorten overall span of arched truss girders that are now full depth of pressbox and partially exposed above the roof.



Range of Services

- Structural planning services
- Preliminary computer analysis of design schemes
- Preliminary member sizing for budget assessment

Project Overview

Eight different schemes (with variations) that were analyzed and designed at the preliminary level for structural adequacy, serviceability and cost implications as they related to the architectural considerations of sight lines, maximizing seating, circulation and other issues i.e. mechanical integration and constructability. Early schemes used the existing corner tower locations, while later schemes pulled the vertical supports in from the towers to maximize seating and shorten the long span. The team worked effectively to share design ideas, generate "what-if's" and evaluate the advantages and disadvantages of every scheme.

Scheme 1

This scheme spanned trusses approximately 400 feet from end tower to end tower, landing the supporting trussed column in the open space within the existing spiral concrete ramp at each end tower. This scheme maximized existing seating and housed all three levels of the press box and suites within the depth of the east and west truss. An unobstructed view of the playing field was afforded to all observers with this scheme. Although it turned out to use the most steel and was the most expensive scheme.

Scheme 8

This scheme moves the columns inward from the end towers to shorten the overall span, arches the top chord of the truss span and reduces the proportions of the truss chords and webs. This scheme also minimizes the torsion on the main trusses and gives a flatter appearance. This scheme reduces weight of steel and cost.

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