

Brian Genduso  
Structural Option  
Faculty Consultant – Dr. Linda Hanagan  
University of Cincinnati Athletic Center  
Cincinnati, Ohio



Courtesy of Bernard Tschumi Architects

## Thesis Proposal – Breadth Work December 5, 2003

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The proposed thesis depth work for the upcoming semester will concentrate on proposing viable options to the perimeter diagrid lateral system of the University of Cincinnati Athletic Center and ultimately determining which option, if any, is most appropriate. The solution method investigates three distinct solution areas labeled I, II, and III. Breadth work in the Construction Management and Lighting/Electrical options both relate to the changes made in these solution areas.

- I) Keep the system in the diagrid configuration while changing member material and/or detailing
- II) Keep the perimeter lateral system while modifying its architectural (and hence structural) geometry
- III) Move the lateral system from the perimeter to within the building

### **Construction Management**

Naturally, changes to the structure of the perimeter lateral system will have a major impact on several CM-related issues. A construction management study of each change will be a crucial part in determining which proposed change is most economical and feasible. The CM factors which will be studied for each alternative are the same as the evaluation criteria used in the depth work, which are:

- Material cost
- Labor cost
- Constructability
- Schedule

In addition, sequencing and site constraints will also be considered, due to the relatively little room between the Athletic Center and surrounding buildings. Scheduling and estimating software such as Primavera and MC<sup>2</sup> will be used to evaluate each factor.

### **Lighting/Electrical**

All of the proposed options for the perimeter lateral system will affect the building's enclosure properties, including the amount and position of glazing required. A daylighting study will be an appropriate extension of the structural depth work. Using AutoCAD models and computer rendering software such as 3D Studio VIZ and Luxicon, the amount and nature of daylight into the perimeter spaces of the Athletic Center will be modeled. The results can be integrated into the decision making process for the overall best solution by assessing each option's daylighting performance.