# Brian Genduso

Structural Option
University of Cincinnati Athletic Center
Cincinnati, Ohio

All images courtesy of Bernard Tschumi Architects

## Project Overview

**Multi-use** – Includes offices, a ticket center, meeting spaces, computer labs, locker rooms, an auditorium, and gymnasium facilities
**Eight stories** – (5 above grade, 3 below)
**Size** – 220,000 ft$^2$ total (150,000 ft$^2$ above, 70,000 ft2 below)
**Construction Dates** – May 2003 - December 2005 (expected)
**Estimated Cost** – $50.7 million

## Architectural Features

**Unique** triangulated "diagrid" exterior façade
**Unusual** kidney shape in plan
**Soaring** 5-story central atrium
**Tightly integrated** with surrounding buildings
**Designed** to be LEED Gold certified

## Mechanical System

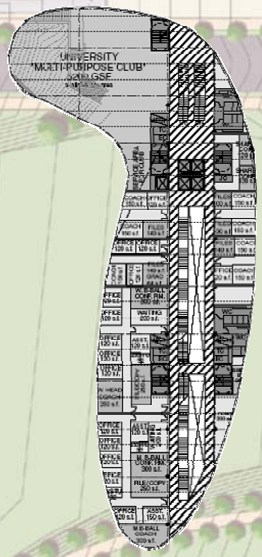
**Cooling source** – University central chilled water plant
**Heating source** – University steam system
**Equipment** – Double-walled Air Handling Units with economizers
**Distribution** - Two mechanical rooms splitting north/south sections of building servicing VAV boxes
**Miscellaneous** – Atrium smoke exhaust control. All equipment tied into Building Management System controls.

## Project Team

**Owner** – University of Cincinnati
**Occupant** – UC Athletic Department
**Design Architect** – Bernard Tschumi Architects
**Local Architect** – Glaserworks, Inc.
**Building Engineer** – Arup, New York
**Local Structural Engineer** – THP Limited, Inc.
**Local MEP Engineer** – Heapy Engineering, LLC
**CM Advisor** – Turner Construction

## Structural System

**Foundation** – Spread footings and drilled piers
**Substructure** – Retaining walls braced by basement level slabs
**Superstructure** – Steel composite beams and composite metal decking supporting one-way slab diaphragms
**Envelope** – Full height trussed frame from steel wide flange and box sections, resting on V-shaped steel columns
**Lateral System** – Perimeter "diagrid" structure with braced frames



## Project Team

**Utility service** – Taps into 12.5 kV campus loop, transformed down to 480/277V. 800kW diesel emergency generator.
**Distribution** – Vertical distribution to panelboards in electrical closets at each floor. Transformed to 208/120V for general service
**Lighting** – Primarily high-efficiency fluorescent with occupancy sensors and dimming control

E-portfolio website: www.arche.psu.edu/thesis/2004/bjg181