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

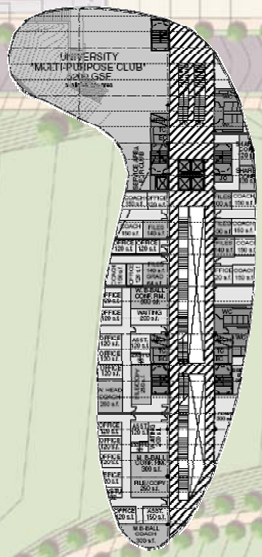
Cooling source – University central chilled water plant
Heating source – University steam system
Equipment – Double-walled Air Handling Units with economizers
Distribution - Two mechanical rooms splitting north/south sections of building servicing VAV boxes
Miscellaneous – Atrium smoke exhaust control.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



Lighting/Electrical System

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