

## One-of-a-Kind Features in a State-of-the-Art Athletic Facility

**GERALD RATNER ATHLETICS CENTER, CHICAGO, ILL.**

**Architect:** OWP/P, Chicago, Ill.

**Sheet Metal Contractor:** Bennett & Brosseau Roofing Inc., Romeoville, Ill

Creating a campus landmark is exactly what the University of Chicago had in mind when it set out to build a new athletics facility. The University sought a building with a design that would entice students while also serving the fitness and recreational activities of the community.

“The building is an example of the architectural art expressed not only through its use of building materials, but through its integration of building structure and mechanical systems. It is a unique building that creates a center for student and University community life,” commented John Briazzi, senior associate architect for OWP/P.

The structure of the Gerald Ratner Athletics center is the first-of-its kind, featuring an asymmetrically-supported, cable-stayed structure that suspends S-shaped roofs over the large-volume gymnasium and natatorium spaces. The cable-stayed system has multiple levels of splayed cables that support loads in three directions. The three-dimensional configuration of splayed cables at multiple levels makes this structure an engineering breakthrough.

This state-of-the-art athletics facility features a gymnasium, an Olympic-sized natatorium featuring a nine-lane pool and seating for 350, a fitness center and an administrative/office area. The design of the cable-supported structure opens the interior spaces for free movement and natural light. The 120-foot-tall masts soar above all of the other buildings on campus, except the Rockefeller Chapel.

Due to budget constraints, Bennett & Brosseau incorporated value engineering to provide a quality product at a lower cost, while still achieving the required aesthetics. The

substitution of custom-fabricated, brake-formed aluminum fascia and wall panels for the composite panels helped to significantly reduce both construction time and cost of the overall project.

This \$2 million design-build project consisted of 80,000 square feet of structural standing seam roofing, along with aluminum fascia, soffit, siding and coping systems. The cus-



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*East elevation of the Gerald Ratner Athletics Center.*

*Continued on the back*

*“Featured edition of Architectural Metal April 2005.”*

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*Continued from front*

tom-fabricated coping, siding, and fascias were fabricated at Bennett & Brosseau's shop and also included a compound-curved coping for the Rotunda area. Prefinished 22 gage galvalume and prefinished .063 inch aluminum materials were used for the project. The Zip Rib standing seam panels for the roof were roll-formed and curved at the jobsite.

As a result of the cable-stayed structures design, the new athletic facility faced challenges during construction. The standing seam roofing areas proved difficult because they were designed with both concave and convex curvatures. Since the roofs were supported with a cable suspension system that allowed for vertical roof movement of up to four inches in some locations, special expansion joint detailing was required at all locations where the "floating" roofing system was in contact with fixed points of the building.

In addition, the extremely warm and humid environment, in the natatorium due to the large pool, created a perfect environment for condensation problems. Bennett & Brosseau worked closely with OWP/P's design team to develop the



*This massive construction project required 2,000 tons of steel alone, featuring 120-foot-tall steel masts that support approximately 2 million pounds of roof.*

appropriate details to address this potential problem. The \$51 million project was completed in February of 2004.