

METAL ARCHITECTURE

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Gantcher Family Sports & Convocation Center Medford, MA

Design/build project delivery brought the \$9 million Gantcher Family Sports & Convocation Center into service at Tufts University within an 11-month schedule, at a fixed price and at the desired quality. Among the requirements met through the use of a pre-engineered metal building system for its construction was that the new facility have a 200' clear span to accommodate indoor track and field competitions, sports team practices when inclement weather prevents them from taking place outside, and seating for 6,000 at major convocations.

Completed in 1999, the 70,000 sq. ft. project is part of a master plan to upgrade the university's indoor sports facilities. The facility was designed and built by Integrated Design & Construction (IDC), a joint venture comprised of Sasaki Associates, a design services firm headquartered in Watertown, MA, and Kennedy & Rossi, a general contracting and construction management organization.

Representatives from the athletics and construction departments participated directly in a coordinated team effort that began with the application for a zoning variance and the many decisions thereafter associated with the planning, design and construction stages.

The alternative approach to the traditional design/build process offered a number of advantages. First, it enabled a firm budget to be established at the outset from the basic design parameters. This set the goal for the college's fundraising campaign. The arrangement subsequently streamlined the design and decision-making during the construction phases. IDC's contract stipulated a not-to-exceed maximum price that required any savings accrued below the maximum amount to revert back to the college. The contract terms

thereby honored the intent of the university's customary policy of segregating design from construction sources on major projects.

Because of the long lead time, several major subcontracts were awarded early in the design stage. These included site work, asphalt and the custom-engineered building systems.

Butler Manufacturing Co., Kansas City, MO, supplied the building's structural framing, standing seam metal roof system and associated structural engineering services. Butler Heavy Structures, a business unit that specializes in complex design/build projects, helped IDC explore the most desirable structural alternative. The project was engineered to Factory Mutual Class I-60 criteria and included a 20'-wide skylight running the length of the roof ridge.

Rather than imposing a monolithic wall on the streetscape, the architects recessed the main entrance between bumpouts from the main wall line. These house offices and other support spaces. The lower 10' of the masonry wall provides an abuse-resistant design solution for the urban setting and respects the predominant material and architectural detailing of other campus structures. Insulated horizontal metal wall panels were used above the masonry up to a perimeter clerestory that girds the building below the eave. The clerestory, full-length ridge skylight and a bank of high translucent windows above the tied-back canopy at the main entrance admit daylighting to supplement a metal halide lighting system in the field house.



Butler Heavy Structures explored several structural options for the 200' x 306' building. A structural truss and heavier girder system were rejected due to the cost and aesthetic preferences. The adopted structural system consists of a modified rigid frame with primary arches on 24'-4" centers, except at the flat endwalls needed for the hipped roof. The column bases extend several feet below the level of the finished floor and are carried on W-12 shapes used as tie members to resist the horizontal thrust forces.

The Butler VSR™ architectural standing seam metal roof system features green, factory-finished panels and incorporates 6" of fiberglass blanket and a white vinyl vapor barrier. The structural steel was painted white to further reflect light inside the building. The ridge skylight is supported independent of the Butler roof system to preserve the roof system's engineered provision to accept thermally induced expansion and contraction.

The 30 truckloads of structural steel were shipped in a carefully scheduled sequence and erected in four phases by Dutton & Garfield, a Butler Builder® from North Andover, MA.