State University of New York at Binghamton
Binghamton, NY

When the need arose for additional student housing at the State University of New York at Binghamton, officials decided to build a new five-story residence hall. The residence hall was so well received by students and university officials that three more residence projects totaling 1,076 units were built using the first building as a model.

Identical in form and structure, the steel-framed, concrete-on-metal-deck residences are clad with brick and masonry and comprised of two irregularly shaped rectangular structures connected in the middle by a multi-story common area. Two of the residences are five stories tall, while the other two are four stories.

Four key factors led to the selection of structural steel as the framing system for the four student residences:

- Cost
- Schedule
- Design flexibility
- Durability

Cost. "Structural steel proved more cost effective than the precast columns and concrete plank system originally proposed," says Douglas D. Schaefer, AIA, VP of Mach Architecture + Engineering, Williamsville, NY.

Schedule. The ability of structural steel to be fabricated off site and erected quickly in the field was beneficial to all four student residence projects, but especially to the first two projects, which were design-build. "We had steel and the foundation package out to bid prior to the rest of the work," says Schaefer. "Our engineers were able to finish up that package without having to wait on the mechanical and electrical packages. This allowed the building to be started before the design was completed."

Design flexibility. Structural steel best suited the irregular shape and configuration of the residence halls. Unlike a typical hotel structure that features a grid with double-loaded corridors, "there was no repetitiveness to these structures," says Schaefer. "Steel allowed us to be more flexible with the floor plan to meet the university's expectations."

Durability. Student residences are notorious for the wear and tear they sustain. The ability of structural steel to withstand punishment as well as to lend itself to complementary building materials that also resist wear made steel a popular choice with university officials. "The steel-frame structure provides a building envelope that lasts for many decades," says Karren Bee-Donohoe, director of long-term planning.

Photo: Mach Architecture + Engineering

The success of Binghamton's student residences inspired officials at Maritime College, Throgs Neck, NY, a fellow member of the State University of New York system, to use the same floor plan for a new residence hall project on the Maritime campus. The Dormitory Authority of the State of New York selected Mach Architecture + Engineering for the $18 million, 300-bed project, which was completed in August 2004. "The Maritime project came directly as a result of our experience with Binghamton, which now has four new residences that they love" says Schaefer.

"The residences turned out great and are very popular with the students."

– Karren Bee-Donohoe
Director of Long-Term Planning
Binghamton University

Location: Binghamton, NY

Client: State University of New York at Binghamton

Completion date: July 2004

Total construction cost: $47 million

Gross floor area: 338,700 sf (four buildings)
(two buildings at 94,083 sf and two buildings at 75,267 sf)

Number of units: 1,076 (four buildings)

Number of stories: 5 (two buildings), 4 (two buildings)

Architect: Mach Architecture + Engineering

Structural engineer: Mach Architecture + Engineering

Construction manager: LeChase Construction

State University of New York at Binghamton

FILE UNDER: Dormitories

HIGHLIGHTS:

- Lower cost than precast
- Off-site fabrication speeds completion
- Design flexibility wins owner support

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There's always a solution in steel.

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