Staying Competitive

BY THOMAS R. BROAD

In today's highly competitive market, health-care facilities are constantly looking to go the extra mile—and so are some of the teams that help build them.

WHEN IT COMES TO HOSPITALS, it's no longer just about good doctors. Facilities themselves need to stand out from the rest.

Responding to the competitive nature of health-care providers today, the University of Michigan Health System is in the process of constructing its new C.S. Mott Children's and Women's Hospital. The 12-story, 1.2-million-sq.-ft state-of-the-art facility will provide the latest in technology and comfort to its guests. The new facility will be versatile, adaptable, and cost-efficient—ready to face a competitive future with a truly patient-friendly and healing environment.

Midwest Steel is managing the entire steel contract for this project using our Structural Steel Design Assist project delivery system. This methodology provides a solid approach that consistently saves owners 12 to 20 weeks on project schedule and 10% to15% on project cost by:

- completing the detailing process early to foresee any value engineering opportunities
- improving communication between the entire team
- avoiding delays and interruptions
- acting as a unique competitive bid process

In the case of Mott Hospital, the first step was to meet early on with the project owner, the University of Michigan, and the construction manager, Barton Malow. This meeting marked the official beginning to the comprehensive pre-construction phase. The design assist process allows us to assist the structural engineer during the design development phase to make constructability recommendations, starting with the end of the project in mind.

During this critical phase, we offered numerous solutions to the construction process, which reduced the project schedule and the project budget considerably. Specifically, the project represented three unique components that required the Midwest Steel team to research, collaborate, and test possibilities for the best solutions and systems to implement for this project.

The first component was lead time. The entire steel industry is facing longer lead times for large steel sections from the mill. An integral part of the planning process with the Mott project was to develop creative sequencing plans. As a result of the time and effort of this preplanning phase, we were also able to save money on equipment rental costs.

The second important component to our pre-planning was to develop a welding system that would save cost and schedule in the field. As of this printing, the welding foreman has reported that eight welders have worked up to the eleventh floor, completing 774 moment welds. This welding requirement equals 17,200 lb of welding. To date, all 774 welds have passed inspection and their quality eliminated the need for extra bracing. When complete, the welders will complete 998 column splices as well. The welding process we created required several weeks at our shop in Detroit, developing innovative welding carts and gang boxes. These portable systems contain everything the welders need to execute their work in an efficient and quality manner.

The third component was erecting the steel on an extremely congested site in downtown Ann Arbor. Perfect sequencing and shipment coordination were required because there was literally

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When completed, the C.S. Mott Children's and Women's Hospital will add 1.2 million sq. ft of space to the University of Michigan Health System.

no lay-down area initially. Only when the decking was installed were lay-down areas created on certain floors of the building. The upper floors of one wing of the hospital require a clear span of 150 ft. As such, we were required to develop an erection procedure for the truss to carry the upper column loads to the lower columns. The truss was not initially integrated into the building. It was to be made up of the largest rolled sections available and it created a huge challenge to the erection crew. The sections created a truss that is 150 ft long and three stories deep, and the diagonal pieces in the truss weigh almost 18 tons; one of the lower columns even weighs 19 tons. The truss was set in pieces, on shoring, beyond the first area of erection. Extra leave-outs, joists, and stability bracing were added, and the shoring will be left in place until the concrete floors are poured. The project uses 13,000 tons of structural steel in all.

Let it Snow

A harsh Michigan winter hindered the erection crew's process; out of 45 days we lost 23 to weather. However, the experienced team was able to finesse the sequencing schedule, and in the end they ended up only one day behind schedule. There were also several changes in scope, and through creative and detailed planning the Midwest Steel team worked with Barton Malow to maintain the project schedule and keep costs under budget. We also provided the schedules of our subcontractors to the Barton Malow team for integration into the overall schedule. The project is scheduled to open in January.

Midwest Steel's detailed safety plan for the site has resulted in an excellent safety record for this very challenging project: zero incidents. One of the ways we ensure safety is by planning it into the job. We met with the Barton Malow safety team before erection started and presented our site-specific safety plan with our fall-arrest manual, as well as the horizontal life-line system we've developed and engineered. We implemented a full-time safety representative to ensure that all safety orientations were completed by the relevant team members; we also hold weekly safety meetings and present safety awards.

Certifiably Superior

This project served as the jobsite visit for our AISC Certification Audit. During the closing meeting, the auditor reported that the pre-planning, communication, and documentation were second to none—the finest example he had seen. In this respect, we shared something with the project itself: standing out from the rest in a highly competitive environment. MSC

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The hospital uses 13,000 tons of structural steel, including a 150-ft-long, three-story truss. Photos: Midwest Steel