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BUILDING DESIGN + CONSTRUCTION

Three AEC firms launch a mass timber product for quicker school construction

TimberQuest brand seeks to avoid overinvestment in production that has plagued other CLT providers.

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TimberQuest, which uses prefabricated mass timber components, can significantly reduce a project's design and construction periods. Images: Courtesy of XL Construction

The website expertmarketresearch.com estimates that the value of the global cross-laminated timber market hit \$779 million in 2020, and is expected to grow annually by 13% to \$1.624 billion in 2026.

As demand for mass timber increases, branding is beginning to emerge. One example is [TimberQuest](#), an advanced prefabricated school construction product for the California educational market, which was recently launched by three Bay Area AEC firms: Milpitas-based XL Construction, San Jose-based Aedis Architects, and Saratoga-based Daedalus Structural Engineering.

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The trio's first project using its product is a new 4,000-sf building for kindergarten students with four 1,000-sf classrooms, each with its own restroom, for Sacred Heart Schools in Atherton, Calif., whose 63-acre campus and K-12 curriculum serve more than 800 families. The school greenlighted this project—which is believed to be the first of its kind in the nation—on April 1, and the mass timber components were fabricated and delivered to the construction site by June 1. The building team is targeting an August 31 completion date, in time for the fall semester.

“Two of the things we liked most about the TimberQuest classroom design is the ‘daylighting’ created by the structure’s large windows combined with the exposed wood interior that makes the classroom very pleasant and appealing,” says Michael Dwyer, Sacred Heart Schools’ director of operations. “The building’s overall energy efficiency supports our sustainability philosophy and stands as a shining example of these values we teach to our students.”

Also see: [A fly-through video rendering of a TimberQuest classroom](#)

A FLEXIBLE PRODUCTION APPROACH TO MASS TIMBER CONSTRUCTION



TimberQuest buildings are available in three-to-nine classroom sizes, and are designed to let in lots of natural light.

Matt Larson, XL Construction’s preconstruction director, tells *BD+C* that his firm and Aedis had worked together previously. “We also knew that we needed a structural expert on both mass timber and



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California codes. Daedalus [has] local expertise, and has partnered with Fast + Epp, a leading expert on mass timber, to provide both expertise under one roof. XL, Aedis and Daedalus have a core commitment to sustainability and innovation, which are at the heart of TimberQuest.”

Larson went on to explain TimberQuest’s approach to fabrication. For higher-tech items that require expensive machining (such as the mass timber components, the HVAC system, and the glazing system), the building team partners with local suppliers with existing plants. For lower-tech parts of panel fabrication, “there is no requirement for a large plant or expensive tooling,” says Larson. To fabricate walls and roofs, flexible approaches can include “popup” factories in temporary facilities, and using XL’s shop/yard. Fabricating onsite is also an option. “We feel that this approach will help us avoid a common failure point for this type of venture, namely the overinvestment in facilities and tooling and lack of ability to quickly scale up or down,” says Larson.

FEWER DESIGN DAYS AND ONSITE TRADES

Several factors contribute to TimberQuest’s production speed. These include pre-made design for manufacturing and assembly, and the reduction in the number of trades needed for a project. Larson says that the building team has winnowed the design process—normally 6-12 months—to 6-8 weeks; and has cut the number of trades onsite—typically between 20 and 30—to around 10. “And we hope to reduce it further in the future,” he says.

TimberQuest buildings are available in three- to nine-classroom sizes, between 3,000 and 9,000 sf. A total of nine interior layouts are included in the precheck design, including standard classroom, large classroom, breakout space, office/conference, science, kindergarten and three restroom configurations. The all-electric design utilizes heat pump technology to exceed California’s Title 24 energy usage standards by between 35% and 60%. TimberQuest buildings seek to take full advantage of renewable energy resources.

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