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Treating safety as both a science and an art creates a secure jobsite. **Page 4**

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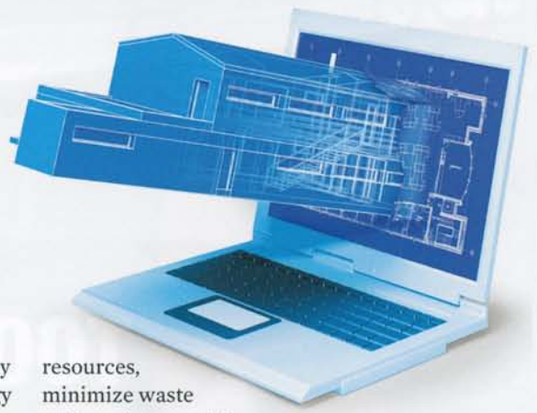
Model of the future

Increasing efficiency in the field using BIM



By DAN RUSSELL

It's no secret that construction is an industry that's slower to change. Even so, technology is playing an increasingly influential role on the jobsite. One recent and significant technology program creating such a shift is Building Information Modeling.

There is a perceived notion that BIM is only for the big boys, and some smaller firms are hesitant to invest in the technology. But BIM is only in its infancy and will be around awhile. Think about where we were with CAD in the early 1980s. By the 1990s, every major project built was designed and fabricated using CAD. By 2020, BIM will be the standard by which projects are designed and delivered so to maximize resources, minimize waste and employ a sustainable construction approach.

A progressively utilized design-build application, BIM replaces standard 2D construction drawings with multi-dimensional computer models. As a result, project teams are able to identify and resolve issues during the design phase rather than during construction. However, BIM's impact goes beyond conserving paper and materials used for drawing and table-top models; it significantly reduces the time, material

BIM see page 26 >>

Safety at Heights

Training, education needed before using mast climbing work platforms

By DAVID H. GLABE

Mast climbing work platforms are marvelous pieces of equipment. And safe too, provided you behave yourself. Actually, it isn't very difficult to use these platforms — provided you have been trained. That isn't unusual. After all, if you want to use any scaffold or aerial platform you have to be trained.

Mast climbing work platforms are aerial platforms. That is, a unique type of aerial platform, designed to provide access at heights. Aerial platforms include nine types of unique platforms including "Boom Supported Elevating Work Platforms," commonly known as cherry pickers or boom lifts, "Self-Propelled Elevating Work Platforms," also known as scissors lifts and "Vehicle-Mounted Elevating and Rotating Aerial Devices." Power companies commonly use these and typically have a boom and basket mounted to a truck.

Mast climbing work platforms, as the name suggests,

HEIGHTS see page 25 >>

Mortenson completes greenest outdoor ballpark in U.S.

Mortenson Construction recently completed Target Field, the new Minnesota Twins Ballpark in downtown Minneapolis's Warehouse District. Finished three months ahead of schedule, the 1 million-square-foot, 40,000-seat, open-air ballpark features superior baseball sight lines from every seat and spectacular views of the Minneapolis skyline.


THOMAS STRAND

The U.S. Green Building Council recently awarded Target Field LEED Silver certification, making it the second Major League ballpark in the United States to achieve that status. Having collected the most certification points ever awarded to a ballpark, it is the greenest outdoor ballpark in America.

The eight-acre site sits at the convergence point of the Light Rail Transit, the future

TARGET see page 24 >>

BY THE NUMBERS Commercial building put in place

Annual value of construction put in place ($ billions).

Source: U.S. Department of Commerce; Commercial and institutional buildings; Forecasts by Farkas Berkowitz & Company.

LCS handles seismic upgrades using careful planning

LCS Constructors, Inc. recently completed the first major phase of construction for Abraxis BioScience. Abraxis initially engaged the team to perform an evaluation of the former ICN/Valient Pharmaceutical building in Costa Mesa, Calif. prior to purchasing the 165,000-square-foot building. The due diligence report revealed several issues that required repair or retro-fit prior to occupying the building, and once the building purchase was complete, Abraxis called upon LCS to serve as design-builder for a multi-phase renovation.

With Superintendent Jim Koons heading up daily production, the team completed significant seismic upgrades as well as restoring and renovating existing laboratory space to Abraxis's specifications. LCS was charged with ensuring the end result would be a new state-of-the-art laboratory that includes labs for chemistry, biology, formulation and safety.

The seismic upgrades presented, literally, the biggest challenges throughout the project. Working on the second floor, the size and weight alone of the

During a recent project, installation of large dampeners in a former pharmaceutical building presented one of the biggest challenges for the LCS Constructors project team.

dampeners were too much to just place anywhere. With each dampener between 15- and 19-feet long and weighing between 700 and 1,000 pounds each, they were too large to install without significant planning.

Planning began and Koons and his team strategized to figure out the best location both close to the work but out of the way; they couldn't have the dampeners inconveniently located or interfering with safety and production. Additionally, existing walls and fixtures in the building became obstacles.

"We came up with a game plan to remove certain walls and fixtures to install these monsters," Koons said.

Because the seismic dampeners were not standard equipment, the installation presented other unique challenges in terms of tolerances. The installation of the units worked out to be .003 to .007 in tolerances. Everything had to be precisely planned and laid out with a laser marked and rechecked before the dampeners could be welded in place. Even the solid steel pin that held the units in place were machined to exact specifications.

In order to accurately plan for the installation of the dampeners, seismic models were created. The team worked with its structural engineer who supplied seismic models that clearly demonstrated how a building reacts in an earthquake. The models were a key element for understanding the purpose and the workings for this job.

"This has been a fantastic client and job to work on," Koons said. "And, although the team faced several unique challenges that accompanied these seismic upgrades, they were resourceful and that, combined with patience, planning and strategy, led to the successful completion of the first major phase of this project."

McShane Construction completes Defense Acquisition University facility

McShane Construction Company recently celebrated the completion of the 62,500-square-foot, two-story Defense Acquisition University with a formal ribbon cutting ceremony held on site.

The build-to-suit property, located in Huntsville, Ala., was completed for developer Triad Properties Corporation on behalf of the General Services Administration for tenant DAU. DAU is a division of the Department of Defense that provides mandatory, assignment specific and continuing education courses for military and civilian personnel. The property is situated on around 10 acres within the Thornton Research Park and has been submitted for LEED Silver certification with the U.S. Green Building Council.

The project was completed utilizing 100,000 man hours without a single recordable safety incident. Green-building strategies incorporated in the project included stormwater quality control, water-efficient landscaping and preferred parking for fuel-efficient vehicles. The use of a variable air volume system in lieu of a constant volume system resulted in 35 percent greater energy efficiency.

The implementation of a construction waste management plan diverted 50 percent or more of construction waste materials from local landfills. Recycled content material, regionally produced material, certified wood and low VOC materials were incorporated where possible.

Charter Builders breaks ground on largest zero energy public school in U.S.

Charter Builders and Irving Independent School District recently celebrated the official groundbreaking for the largest net-zero public school in the United States. The first of its kind in Texas, the school district's Lady Bird Johnson Middle School is designed to produce as much energy as it uses, thereby reducing operating costs for the district and shrinking the school's carbon footprint.

To reduce energy consumption, the school is designed to meet LEED Gold specifications and will feature increased insulation, high-efficiency glazing, daylighting and an Energy Star kitchen. The school will also use permeable paving to reduce runoff and harvest rainwater and grey water for irrigation.

Charter Builders was awarded the $29-million contract to manage construction of the new school, located in Irving, Texas. The 150,000-square-foot facility will produce its own energy via solar panels, geothermal energy harvesting and wind turbines. If the school produces excess energy, the district could sell energy to a local electric provider, creating a potential revenue source for the district.

"Net-zero buildings help reverse negative trends associated with climate change," said Scott Layne, the school district's assistant superintendent for support services. "Irving's new middle school will consume approximately half the energy that a typical middle school building consumes."

Scheduled to open to students in August 2011, the building will serve as a 3-dimensional learning space, teaching students environmental responsibility through practical, hands-on experiences with geothermal science, rainwater collection, solar panel usage and wind turbine efficiency.

"We're proud to be a part of this project," said Charles E. DeVoe, III, president of Charter Builders. "We have worked with Irving ISD for seven years, and we're thrilled to partner with them as we pioneer ways to build better, more environmentally responsible schools in Texas."

In addition to Charter Builders, planners who helped the school district develop the concept for the new school included architect Corgan Associates, Inc. and consultant IEG Engineers.