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Technology gets the assist

Keith Regan learns how Clark Construction's use of technology helps it keep even the most complex projects on time and on budget

With a track record reaching back more than a century, Clark Construction is one of the country's most prolific construction firms. With over $4 billion in revenue, Clark ranked as the 13th-largest construction firm in the country last year based on total revenue, according to *Engineering News-Record*, and sixth-largest based on domestic revenue. The company has a wide range of experience, from educational and commercial to airports and sports complexes.

The Bethesda, Maryland-based company has long counted projects in Las Vegas among those in its burgeoning portfolio, and has been licensed in the state of Nevada since 1992 according to Jim Day, vice president of the Las Vegas office. Even as housing growth has recently slowed dramatically, opportunities abound for a versatile and experienced firm such as Clark, Day adds. "We're a commercial contractor with a diverse portfolio. We've done most types of commercial work, and we bring that range of experience to every type of job we do."

Clark's recent Las Vegas portfolio underscores

that versatility. The firm recently completed work on Greenspun Hall at the University of Nevada, Las Vegas, a 120,000-square-foot, $70 million building that houses the university's College of Urban Affairs and includes a high-definition media production studio that is designed to achieve LEED Gold certification by the US Green Building Council. The building, which also features a 125-foot-high brick tower marking the entrance to the UNLV campus, was dedicated in December 2008.

Clark is also working on the Bellagio–Monte Carlo People Mover tram station on the Las Vegas Strip. "It might be a private client on design-build or a public one with a lot of pre-construction design work, or lump-sum work," says Day. "We're comfortable on all types of jobs and all types of delivery models."

One of the hallmarks of Clark's work is its attention to detail in the project management area, a reputation that has been enhanced by its embracing of technology as a tool for getting jobs done more accurately and with fewer delays or in-the-field problems. This philosophy is currently displayed in Clark's work on the Veteran's Affairs Hospital project.

The VA awarded Clark the contract to build the 790,000-square-foot, 90-bed hospital on the VA Southern Nevada Healthcare System's medical campus last fall. Clark previously built a central plant and energy center and completed extensive site work and utility installation in earlier and separate phases of the project. Clark is also in the process of completing a nursing home on the site under a design-build contract.

The sheer size of the hospital project—at $365 million, the largest contract ever awarded by the VA—ratchets up the challenges and opportunities in the project management area, and Clark is embracing technology such as Building Information Modeling (BIM) to help ensure that subcontractors have all the information they need to do their jobs quickly and accurately.

A healthcare project often lends itself well to using 3-D imaging and BIM because of the density of systems that must be fit into tight areas. While the modeling process can sometimes find opportunities for design improvements and cost savings, "The biggest advantage is improved efficiency when you get to the point where you're installing systems," Day says. "Traditionally you'd do a light-table overlay, and inevitably you don't catch every conflict, so when you go out to install it, you end up with stopping points where this ductwork interferes with that piping. Then you have to stop and go back to the drawing table to find a work-around."

With a digitized and 3-D model in hand, such conflicts can be avoided up front, and subcontractors may also find opportunities to do more fabricating work off-site, further reducing the potential for conflicts on the job site that can cause schedule delays.

As it prepared its BIM documentation for the hospital project, Clark wanted to include the energy and central plant that it had built during an earlier phase. At the time, the building was largely an empty shell, and no 3-D modeling was done when it was built. To fold the plant into the current phase's design scheme, Clark contracted with a firm that used a technique known as laser-point cloud scanning that essentially captures a 3-D

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image of the existing building, showing the existing chillers, basic ductwork and other obstructions. Clark had used the work in the past on large-scale renovation projects, including one for General Motors in Detroit. "It's a way to get all the parts of the project onto the same level of information for ourselves and our subcontractors."

Although the VA work is not seeking LEED certification, Clark is at the forefront of the trend toward green building, with close to 100 LEED accredited professionals in the firm's Western region alone and with over 200 LEED accredited professionals nationwide. Clark's work in the desert also reflects the firm's commitment to safety. "We have a very good track record compared to the industry as a whole, and that's something we put a lot of time and effort and participation from the top to the bottom into," says Day. "It can't just be something you talk about at the beginning of a job; you constantly have to outreach, and it has to become part of how you do things." Clark's commitment to safety is reflected with their recent achievement –the 2009 first-quarter OSHA Nevada Safety Partner Award.

The slowed economy has created a more competitive and cost-pressured bidding environment, but it has also made subcontracting help and labor more plentiful. "We're comfortable doing the preconstruction negotiated work, and we can be strategic and do lump-sum bidding depending upon the situation. We have a lot of experience with estimating in a lot of different economic environments, so we can be competitive in every situation." – *Editorial research by Dan Finn* ■