

# Field Reporting Goes *High Tech*

**Clancy & Theys Construction Company is using Field2Base technology to transform the way it does business.**

BY CHRISTINA FISHER

**C**hange orders, errors, unforeseen circumstances, and numerous other complications and challenges impact the job site every day, affecting the project's progress and, ultimately, its financial bottom line. However, on a recent project at North Carolina State University, Raleigh, North Carolina-based Clancy & Theys Construction Company put Field2Base technology to work and has seen it transform the way they do business.

Clancy & Theys began building Phase II of NC State's College of Engineering 15 months ago. One of the first public projects at the university to be delivered using the "Construction Manager-at-risk" method, the \$45-million project is for the Electrical Engineering Department.

Once Clancy & Theys was awarded the project, they were approached by Ed



Because of concerns about local market conditions affecting the project, Clancy & Theys decided to convert the NC State project from structural concrete to structural steel. F2B helped to overcome the problems faced by hurried design changes.

White, chairman and CEO of Field2Base (F2B), a Clancy & Theys client, and an NC State alumnus on the board of the Engineering Foundation. Ed persuaded Clancy & Theys to conduct a trial of the F2B system on the project and offer feedback to improve and upgrade the technology. "It was a learning experience for us with this new tool," said Scott Cutler, vice president of marketing with Clancy & Theys, "but we were able to give them feedback about their system."

Project Superintendent Don Street took to F2B immediately. "I've never been much of a computer person, so the system needed to be simple and fast," said Don. "They delivered a product that is really easy to work with."

Headquartered in Morrisville, North Carolina, Field2Base, Inc. sells software, hardware and a secure communications service that automates the flow of information between field personnel (project engineers, superintendents, inspectors, etc.) and office personnel (architects, engineers, project managers, owners, etc.). Field2Base, Forms2Base and the Field2Base server form the basis of the F2B network.

Field2Base runs on a tablet PC that has been designed to withstand the rough environment of the job site. Using either Wi-Fi or digital cellular networks, the F2B tablet PC provides instant access to e-mail, faxes and document sharing.

"The first menu that pops up only has three categories: Project Communications, Forms and Reports, and a Filing Cabinet to keep everything straight," said Don. Under "Project Communications," Don can access notepads and sketchpads that allow him to describe and sketch a problem on the job site as he sees it, then immediately e-mail the message as an attachment to whoever needs the information. Thus, the receiver does not need to have F2B capability in order to access the message.

F2B can display and allow document annotation on CAD files, which can be loaded onto the tablet PC. Don can pull up any CAD file he needs, zoom in on a particular section of the drawing, and then write or draw directly on that "page."

**Clancy & Theys Construction Company was awarded first place in the AGC of America's Best Information Technology Solutions Contest 2005, a competition featuring the newest technology-driven business applications for contractors across America, which was held during AGC's 86th Annual Convention in Las Vegas.**

After saving his work to the "Filing Cabinet," he can e-mail it immediately to any member of the construction team or send it to himself to access later when he returns to the office.

The F2B tablet PC also incorporates a digital camera system that is capable of high-resolution photographs. The camera system is fully integrated with the software, allowing the user to simply "point and click." The user can then annotate or draw directly on the picture, save it and send it over the network.

"The pictures are worth a 1,000 words," said Don. This proved to be particularly true during the structural steel phase of the NC State project, which was the result of a complete design change just prior to bid time.

The CM-at-risk approach gave Clancy & Theys the opportunity to be at the table during the project's design process. Originally designed with a structural concrete frame, Clancy & Theys performed a market analysis and decided it would be wiser and safer to proceed with a structural steel frame. Although commodity prices for both concrete and steel were comparable at the time, a significant increase in the construction of structural concrete buildings – and the resulting demand on a small number of structural concrete contractors and suppliers – had created a problem in the local market.

"Another project here at NC State had already had a problem attracting interest from structural concrete contractors," said Scott. "We were concerned that NC State would pay a premium for a structural concrete frame as opposed to

steel. We were fortunate because we timed the market exactly right so that we did not experience steel – or concrete – price increases." In addition, converting to a steel frame avoided the cement shortage problems the Southeast experienced last summer and ultimately shaved a couple of months off the construction schedule, also saving the owner money.

Converting the project, however, meant that the construction team, including structural engineers KingGuinn & Associates and architects Perkins & Will, had to work quickly. KingGuinn revised the complete set of structural drawings and other initial documents within three months so the state could approve and award the project. Once construction began, Clancy & Theys divided the project into smaller phases so that the structural engineer could "keep up with the pace of construction by pacing his details as we phased the work," said Don. "This allowed him to do his detailing and get the information down to the fabricators and turn the steel around. We were able to overcome the problems faced by hurried design changes and not hold up construction."

According to Don, the picture-taking capability of F2B proved to be an invaluable tool during the entire conversion process. "We could share information between the structural engineer and the field. (The engineer) could see problems on his computer as they occurred, which was a real timesaver."

Don also saves time processing the numerous reports and forms that are the daily requirement of any construction project. F2B provides digital versions of a variety of forms such as government documents, safety checklists and company timesheets through its Forms2Base system on the tablet PC. "We are able to load in...reports that we use on the job site, like the Daily Report or RFIs. These are just standard documents that you'd fill out with a pen at the end of the day. Now Don can do it on the spot while the information is handy," said Scott Cutler.

"You can also maintain and build your project schedules," added Don. "We have Sure-Track loaded in the tablet PC so I can



The F2B tablet PC has been designed for the rough environment of the job site. The tablet will run for two hours or more, depending on the type of battery pack.

pull up and maintain the project's schedule. I can save it and send it to the main office to print out any time I need to do so."

A central hub for all communications between the tablet PCs and the Internet, the Field2Base server maintains data and ensures its security. All communications activity and copies of documents sent to and from the tablet PCs are maintained on the F2B server, providing both a communications trail and backup for any tablet user should the hardware become damaged and unusable. The server uses state-of-the-art encryption technology, and information is accessible only to authorized users.

Because the NC State project was Clancy & Theys' initial outing with F2B, they have not done a final accounting or cost benefit analysis. However, Scott

states that the system has more than paid for itself and the company is investing in seven more units.

"The efficiency...in response cycles to problems saves so much time, and in our business time is money," said Scott. In fact, both men are able to point out specific instances that "had we not had the tool, we would have had to throw money at a solution because of the time loss or lack of ability to communicate quickly."

For example, Don has used F2B to send pictures from the job site for an inspector's immediate approval. A picture and description of a damaged floor was sent to a subcontractor and allowed him to send out a man with the proper tools to repair the problem the next day. When the furniture layout for the new building did not coincide with the electrical outlets already in place, Don used F2B to communicate from Las Vegas – where he and Scott were demonstrating F2B at the AGC's 86th Annual Convention – with his project manager in North Carolina and instruct him to use flexible conduit rather than demolish the drywall to move the outlets – saving \$25,000.

"You can save days and weeks when you can hasten solutions to many problems, especially when multiple people are involved," said Scott. "It's good for anybody who has to be out in the field away from an office – sales people, regional



add studs  
pack down to  
38" inches  
3/0 cased  
opening  
with tension  
above

An example of a digital photo taken with the F2B system. A project manager can draw directly on the photo and write notes in the available space. The image can be saved and then immediately e-mailed over the network.

managers, etc. For a road contractor, it would be especially great because he'd have an office (with him)."

"The more we use it, the bigger it gets," added Don. "It's truly a great tool."

For more information about Field2Base, call (919) 462-8500 or visit [www.field2base.com](http://www.field2base.com). For more information about Clancy & Theys Construction Company, call Scott Cutler at (919) 834-3601 or visit [www.clancythey.com](http://www.clancythey.com). ■