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CIOs strive to link jobsites real-time to offices with mobile communications.

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By **Bridget Mintz Testa**

Still fond of the days of clipboards and pencil stubs? Home building's subdivision culture can find mobile communications and its host of buzzwords, acronyms, and mutating "form factors" more than a little geeky scary. Nostalgia can't compete, however, with the strategic imperatives that wireless communication promises.

As dramatically slower absorptions and weakening pricing threaten to compress margins, home builders are relying on reduced cycle time and increased efficiency, accuracy, and productivity to make up some of the gross profits they're losing on the volume and pricing side of the equation. Hoping to achieve those imperatives, big builders are embracing wireless technology and tools.

The embrace can be hesitant, with good reason. Wireless technology suffers from drawbacks that seem almost intentionally designed to chafe builders. Connectivity, also known as coverage or service, is unreliable or nonexistent in many remote spaces where builders operate. Even where connectivity exists, the wireless "pipeline" may be so narrow that data transfer becomes problematic. Software that makes personal digital assistants (PDA) and tablets compatible with a company's enterprise system and applications may not exist or may require customization or business process changes.

Despite the obstacles, big builders have achieved notable successes in putting mobile technology to work. They've either addressed the obstacles or found ways to work around them. What's the consensus? Things can only get better.

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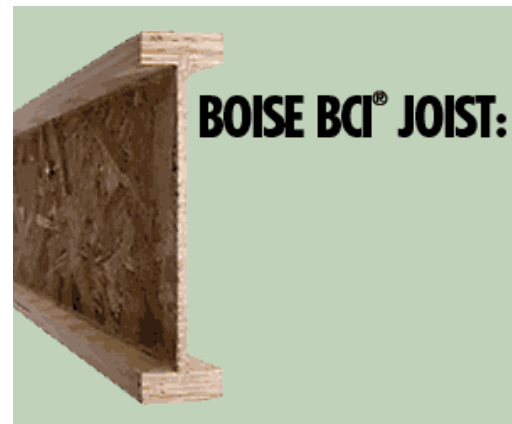
BuilderMT's software should scale up for big builders that construct thousands of homes a year versus Generation Homes' 170 or so. It's based on open source SQL (structured query language, the most popular computer language used to create, modify, retrieve, and manipulate data from relational database management systems), "so anyone with SQL can use it," says John Radi, BuilderMT's vice president of business development. The software also incorporates an interface that lets it integrate with other data solutions and software without a lot of customization.

LEADING EDGIER

"Early adopter" is the best description for each builder CIO we interviewed for this article. They're finding the solutions that other builders will incorporate later. They're grappling with today's challenges because of the strategic benefits they expect to gain. "We're just starting to tap into mobile technology," says Brian Ennis, president of Porterville, Calif.-based Ennis Homes. "It's all about being able to get the information you need, when you need it, wherever you are."

Builders shouldn't let worries about technological difficulties keep them from adopting wireless communications for too long—or not at all. "As the MySpace generation starts buying houses and looking for jobs, the expectation will be that home builders are at least as conversant in wireless technology and technology in general as the people buying the houses," says Joe Stoddard, vice president of SMA Consulting in Lawrenceville, Pa. "If you're a builder and don't realize that your next generation of buyers, trade partners, and employees are going to expect this and won't consider working or doing business with a company that is so out of touch it doesn't embrace it, then you're headed toward irrelevancy."

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It's likely that the technological difficulties of wireless will be solved sooner than later. Builders already in the fray could enjoy a pleasant, if inevitably temporary, market advantage while competitors struggle to catch up. There's no time like the present for builders to unwire.

"There is a demand from anyone who moves around to take their work with them, and this is most of our people," Batt says. "We are on a rising technology curve. Coverage is the big issue, but the major carriers are rolling out broadband wireless data networks. There is nothing standing in our path to deploying mobile communications."

Bridget Mintz Testa is a freelance writer based in Houston.

Wireless Tech Helps Builder Win Quality Awards

Starting in 1999, Ellicott City, Md.-based Grayson Homes started a drive to achieve excellent quality as measured by customer satisfaction. To further its drive, the company entered the competition for the NAHB Research Center National Housing Quality (NHQ) awards. After NHQ judges recommended that the builder institute a formal high-tech quality inspection program, Grayson turned to Advanced Technologies Support Group, a software developer based in Owings Mills, Md. Though ATSG's quality program wasn't designed for builders, the developer was game to adapt its application.

"I wanted supervisors to walk a home [with the system] and use a drop-down menu that shows typical defects for different parts of the house," says Ron Swecker, director of home building. In just a week, Grayson superintendents identified more than 1,000 typical defects for building phases, such as plumbing and HVAC, and ATSG turned the list into drop-down menus.

After implementing the quality assurance program, Grayson won the NHQ Silver Award in 2004 and the Gold Award in 2005. It also was the second company to achieve certification by the Research Center for commitment to quality. Grayson has maintained zero defect levels in a steady 96 percent of homes at settlement with customers for three years straight.

Beyond helping Grayson win awards, the quality system provides many other benefits. It ensures that superintendents fill out checklists in the house rather than in their homes or offices, eliminating the possibility of forgetting problems. When superintendents check defects and notify trades, the system tracks the trade's defect rates. That "lets superintendents speak more intelligently and specifically about problems with trades," Swecker says. "It's much better than memory, and the trades can respond better."

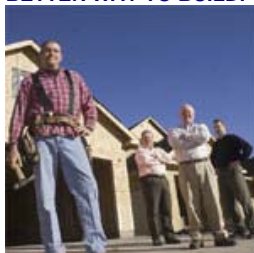
Grayson Homes built 140 homes last year and expects to build about 120 this year, but its quality assurance system should scale up for big builders. ATSG co-owner Gerry Markowitz says the system is based on open, standard, scalable technologies—Blackberry, Microsoft's SQL server database, as well as its .NET development platform—and can interface with other standard databases.

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There's also a customer relationship fringe benefit, Batt says. "Service managers tell me that when they open up the tablet and the application and type in the request right there, the customer says, 'Wow!' They're impressed," Batt explains.

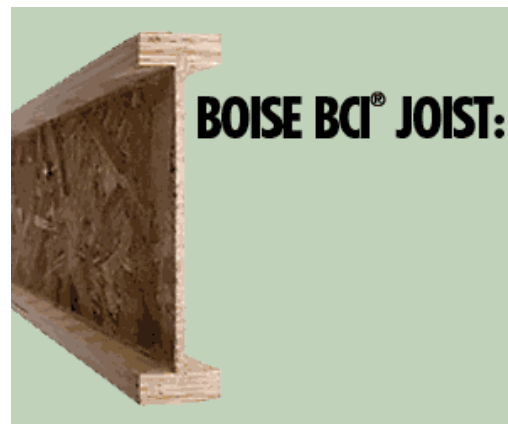
SOFTWARE THERAPY

For most of its history, the residential building industry was made up of small, family-owned companies. Builder-specific software development companies were also small and family owned. "Big" building companies only emerged about a decade ago. Look as hard as you like, though, and you won't find an equivalent of Microsoft focused on builder applications. That's left big builder CIOs with a dilemma. Builder-specific software written by small businesses generally doesn't scale up to their giant-size needs, while large enterprise software corporations aren't electrified about the opportunity to customize applications for a market comprised of just a few companies. As described in "Getting IT Together" (See BIG BUILDER, February 15, 2006, page 44), CIOs have tried a variety of approaches to get the software they need, from all-in-one integrated systems to best-of-breed to build-it-yourself. However, no industry standard has emerged.

Now comes mobile technology, with a whole new batch of software challenges. Chief among them is getting existing enterprise and application software to work on wireless devices that may or may not have the same capabilities as the office computers. When existing software won't run on the wireless tools, the challenge is to find and adapt applications that address builder needs, work on mobile devices, and can work reasonably well with office systems.

Capital Pacific's back-office applications include its extranet, which features option and

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selection sheets, sales contracts, project scope forms, warranty manuals, customer and home information, a scheduling tool, and more. "In a perfect world, we'd have one device for the superintendents, warranty reps, and trades that does e-mail and the extranet page so everyone can get all the information they need," Ryan says.

Instead, Ryan has encountered endless problems. "Making the software available to synch up the back-office software with the portable devices is my biggest frustration," he says. "It either requires customization, which the software suppliers don't want to do, or I have to change my business processes."

For the time being, the extranet, which represents a lot of corporate time and energy, is only available through PCs. But Ryan is having a small piece of the extranet converted for use on a handheld device. Part of the conversion challenge is figuring out how to display Web page information on the tiny screen of a wireless tool, yet still have it be readable. If the conversion works, "I'll have in-house programmers move the whole extranet piece by piece," he says. Ryan anticipates that it will take a year to convert 25 percent of the extranet for the handheld.

Having the information on the extranet available to everyone in the field will not only reduce cycle time—Ryan's big goal—but it also will help ensure accuracy. "If what goes into the customer relationship management system, such as option sheets, are available for anyone to examine at any time, then it'll greatly reduce mistakes," he says. "We won't build the house wrong."

In contrast to Ryan's frustrations with applications developers, Paul Deffebach, CIO of Fresno, Calif.-based Generation Homes, is delighted with his software provider, BuilderMT. Who wouldn't be delighted with software that helps free up hundreds of thousands of dollars in working capital—money that wouldn't have materialized without integrated back-office and wireless applications.

Two of BuilderMT's applications are involved: a wireless scheduling program for a handheld tool and a purchase order program. The two are linked. When generation superintendents check off completed items in the scheduling program, a purchase order (PO) is created. Each house has its own PO database. Using the database, each house's completion percentage can be automatically calculated. "Now we don't have to rely on the superintendent's memory [to estimate completion]," Deffebach says. "We can use the database."

Deffebach bases his bank draws on the PO databases. "One month, we got \$480,000 more in working capital than we would have gotten with our old way of doing things," he says. "We get accurate, timely information by extending our network out to remote sites. We can use this information to get more money sooner and faster. We can open more communities because we have the working capital. And that's not good—it's fabulous."

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Connectivity is essential to mobile communications. Without it, you can't even have a cell phone conversation. For most builders, it's their biggest issue with the technology. "It's still a challenge to get the communications industry to provide the infrastructure needed, not just for the homes, but so you can outfit your trailers and field people," says Rob Kelle, vice president and chief information officer (CIO) of Standard Pacific Corp.

Real-time or live connectivity lets users have that cell phone chat or remotely access a corporate server or a Web site. Some builders see live connections as a must, whereas others are satisfied with "synching" data devices with company computers when field personnel return to the office or find a wireless hotspot.

Sean Ryan, CIO of Capital Pacific Holdings, views live connections as vital. "Our goal is to have real-time connectivity when field personnel are in the house working," he says. For example, if a vendor asks a superintendent what color to paint a room, an instant connection would let the superintendent log into the company server with his PDA or tablet and get the answer immediately.

"Right now, a superintendent must go to his or her truck for paperwork or to the site trailer to access our corporate extranet," Ryan says. "Anytime our people aren't in the house, it hurts us by using time that could be spent on the job. It adds cycle time, and reducing cycle time is one of our big goals."

For Ryan, synching is a workaround, but for Pulte Homes' CIO, Jerry Batt, it's perfectly acceptable.

Batt doesn't consider real-time connectivity critical, especially in situations such as warranty service. For face-to-face meetings with buyers, Pulte's customer service managers take their wireless tools to the meeting, open up the applications, and input the required warranty tasks. A message can stay in the manager's tablet until a synch up with an office computer, or if there's a live connection, it can be sent right away. In either case, once the message is sent, the warranty service request goes straight to the relevant vendor. "By having that device out there, we have an immediate record of need and an audit trail," Batt says. "There can be no miscommunication from the customer to the service manager to the vendor, and it saves an hour a day for our customer service folks."

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