

## New Technology for the Construction Work Force

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The building industry has embraced new technologies to improve design, sales, bidding and accounting. I want to discuss how to use technology to improve construction systems and reduce construction costs. At 50%-60% of total costs, construction is by far the highest cost component of the business.

First I will suggest why it is important for Trade Contractors to use new technology and how to encourage them to do so.

Next I will describe how we are using technology to accelerate job-site improvements and where we will go from here.

### Getting trades to use technology in the field

Driving improvement in construction depends on how effectively builders work with their vendors and how effectively their vendors work with one another. In other words, if you are going to focus on improving construction and reducing construction costs, you need to bring your Trade Contractors into the improvement process. If you want to use technology to accelerate improvement, your Trade Contractors need to be willing and able to use it.

Builders should be encouraging their Trade Contractors to learn about new technologies and to use them. In other industries, even traditional companies are paying for their employees' personal computers.

- Ford is underwriting the purchase of home computers and 65% of the monthly cost of the Internet for 300,000 employees.
- American Airlines is underwriting most of the costs of computers for all its employees. To top it off American will pay for two-thirds of the cost of Internet connection. The reasoning is that access to technology will give the company a smarter and therefore better work force.

Trade Contractors are not builder employees, but they certainly are the builder's construction work force.

### Technology needs to serve the user

The industry has been slow to adopt technology in the field partly because there is a perception that Trade Contractors won't use it. Our experience shows that Trade Contractors will use technology if it is simple and they can see results quickly. Don't ask them to use a complicated interface that requires extensive training. Offer them tools that are simple to use and easy to understand.

Start with hand-held computers:  
Increased productivity will make  
them well worth the investment.

One of the best ways to introduce technology in the field is with hand-held computers such as the Palm Pilot. Field personnel can use applications today, such as scheduling, contact management and expense tracking, that will benefit them immediately. That experience is a good foundation to build upon.

Some companies in our industry think hand-held computers are too expensive at \$150-\$500 per unit. It is important to consider that companies in other industries, (e.g., Avis and UPS) use field hand-helds that have more limited technology and cost as much as \$1,200 per unit. The increase in productivity, efficiency and customer satisfaction that these tools can provide is well worth the investment.

## **Use technology to measure activity in the field**

Unify International believes that measurement is one essential tool to improve systems, reduce costs and boost production capacity. All major manufacturers -- whether making cars or computers -- measure each step of activity on the assembly line to identify problems and devise solutions.

Builders need to measure activity in the field for the same reason. There is a huge opportunity to reduce costs by measuring construction activities in more detail and systematically eliminating problems. Incremental improvements can make a big difference over multiple job sites and time. The benefits of measurements are increased production capacity, better-quality construction and higher profits.

Huge opportunity to reduce costs  
by measuring construction  
activities in more detail

Measurement itself leads to improvement. When people know they are being measured, they will try to do better. Everybody wants to win. Measurement goes hand in hand with improvement.

Last year we moved our measurement system onto the Internet to accelerate improvements in the field. The measurement tool we use is called the Job Ready/Job Complete<sup>SM</sup> Monitoring System, or JRJC<sup>SM</sup>. The JRJC<sup>SM</sup> is a set of checklists that builder employees and Trade Contractors use to record how their job was handed to them. Was the job site accessible? Was the foundation square? Every item, large and small, that affects the crew's ability to perform quickly and correctly is checked. When there are problems, they are noted, and the costs in materials and time are noted, too.

Trade Contractors gather this information from their field personnel and input the measurements directly into Unify International's secure Web site. The data is then made available for report and chart generation that the trades and builders can view simultaneously.

Putting the JRJC<sup>SM</sup> measurements and reports onto the Internet speeds the improvement process by moving closer to real-time feedback from crews. They know how they're doing and what they need to do to improve within days -- rather than weeks or months -- of their job performance.

## **Information within seconds**

The Internet itself makes it possible for the information to travel from one source to another within seconds. The information is now more easily accessible to everyone who can benefit from the information. There is no faxing or mailing reports back and forth. No one has to administer the reporting process and make sure information gets to the right person.

Once the data is input, reports and charts can be generated and made available to all of the appropriate parties within 24 hours of the cycle end date. In addition, it is easy to compare job-site performance for any specified time period and track both short- and long-term improvements.

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