

# e-commerce and construction

From purchasing to on-line bidding to project collaboration, websites are changing the way we build.

Ten years ago, general contractors utilized a fax machine, two-way radio and a beeper to do business. Five years ago, they added a cellular phone to their list of critical tools. Three years ago, a high-speed modem made the list because, like virtually every other industry, the Internet is changing the way contractors do their jobs. The impact is happening in two areas – commerce and collaboration.

connecting buyers and sellers — right now

In the area of commerce, the Internet offers distinct opportunities to buy and sell equipment and materials, as well as bid on-line for jobs. In terms of collaboration, it stands to revolutionize how contractors communicate with owners, architects, subcontractors, suppliers and even the public. Already, on-line project collaboration is saving contractors hundreds of thousands of dollars by slashing the waiting time for responses to Requests for Information (RFI) – time that translates into shorter completion times and the ability to take on more work. >

Three E-commerce applications exist in today's industry – the auction, the catalogue and the exchange marketplace.

For small geographically isolated companies, on-line commerce can be a tremendous benefit because it puts them in contact with a variety of suppliers so they are no longer forced to use one regional supplier. Plus, they are able to compete for new segments of business due to the availability of tools and materials.

An on-line auction works much the same way as a traditional auction. For companies that have surpluses, like drywall or windows to sell, it works quite well. The problem for buyers is that of those competing for the items, only one will win the bidding. Then, there will be the expense of delivery and concerns that the purchased items won't live up to the specifications listed on the bid lot. The losing bidders will find that they have spent precious time trying to save money and come away empty-handed.

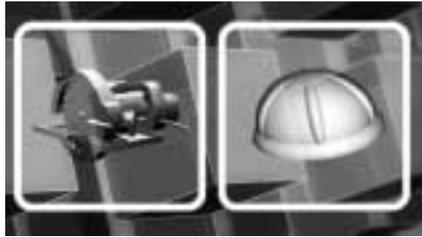
The on-line catalogue is an excellent resource for standard items purchased on a regular basis. If a job calls for a gross of Kwikset handlesets, for example, the on-line Kwikset catalogue shows the different models and lists the warranty and specifications. The catalogue can generate a user profile for each customer, then track that customer's typical purchases, announce sales and present special offers based on spending habits. It's especially beneficial for comparison shopping as pricing between companies can be easily checked.

Though catalogues work well for standard items, how does a contractor buy cubic yards of concrete, tonnage of steel or a pieced-together package requiring specific products? That's where an exchange comes in.

on-line exchanges and bidding:  
a new way of finding work

On-line exchanges and on-line procurement systems have blasted onto the scene, automating a host of labour-intensive processes. In a construction-related exchange, a general contractor posts his bid package, uploading the specifications, draw-

ings, and bidder qualifications for the project. Pre-qualified subcontractors are notified when a new project is available to bid on.



The construction industry continues to embrace the Internet's cost-effective and time-saving benefits as a business tool.



Handling the process on-line has a number of benefits. If there are last-minute changes, the general contractor can simply upload them and the system will send out a message to all the subs to check for an update. Depending on how the subcontractors want to be notified, it could be by e-mail, pager, cell phone or other wireless device. Anyone who's ever spent a weekend photocopying and shipping changes in a bid package to subcontractors knows what a phenomenal saving in time and money this represents.

How does a general contractor know which of these applications will be of use to his company? Maybe all of them, maybe none of them. It's up to

each general contractor to investigate the various models and see what makes sense.

close, but not yet there

The major downside at this point is that there's no "one size fits all" package – there are just too many trades in the field using different systems and different timelines. Once a general contractor decides on a format, he must educate each group he works with. Currently, some models work well, but only for large commodity purchases – not large bidding packages, which can be cumbersome to manage on-line. We're headed toward a more standardized on-line construction environment, but, at the end of the day, thousands of companies and people are needed to make it viable. Realistically, we're two to five years away from reaching a critical mass. Indicators show that companies will collaborate before they buy, which is the other area of on-line opportunity.

collaboration through a website

Before Internet technology, project team members who were separated from their construction site by distance found it complicated to plan and schedule the project. Initially, the Internet offered little to aid in the design and construction process besides e-mail and file-transfer protocol (FTP) sites, which were used to exchange files among project team members.

More recently, a number of website development programs that take a more comprehensive approach have become available. The construction industry continues to embrace the Internet's cost-effective and timesaving benefits as a business tool. Tailored to design and construction, these products take advantage of the Web's instant access and graphic information base to provide sites dedicated to specific projects.

becoming web-ified

Web-enabled project management is now an essential part of residential and commercial construction planning. Today's systems allow contrac-

tors to rapidly build project-specific websites for every job by connecting the contractor with all the critical parties.

The benefits are myriad and significant. Web-based collaboration systems prevent delays from clogged fax machines, missed telephone calls and communication breakdowns. Now, engineers, owners, architects, contractors, subcontractors and inspectors can view, complete and execute reports, plans and records through one central site.

Depending on the program, information on the project website may include meeting minutes, general correspondence and schedules. Further, the site can accommodate graphic-rich data such as photos, CAD drawings and scanned hand-drawn sketches. These sites also feature instant messaging and updating capabilities.

#### e-builder's internet tool box

Nearly everyone agrees that a Web interface improves project information access and speeds delivery. But there is little agreement on the type of system to use behind that interface. e-Builder designed a system that works with any browser and provides access to companies using a variety of systems.

Using an Internet-based set of communication and collaboration tools found in the e-Builder's tool box allows an instantaneous exchange of information among construction participants, in a secure environment while providing detailed records. Plus, in public areas of the site, the community can view on-going progress and get important details about construction status, the project's design and its intended uses.

A website can effectively coordinate the work of multiple consultants. Meeting notes, project or schedule changes can be distributed to the entire team via e-mail in minutes rather than days. Plans and base sheets can be stored in a folder within the site. Team members can view them at their convenience, eliminating the time and cost of making countless copies and mailing or couriering sets to everyone on the team.

nowhere to hide:  
accountability goes on-line

Web-based communication and collaboration allow the facility owner to distribute project documentation to the entire team and confirm that each member has received and read the information. Team members can ask questions and receive answers (with an automatic written record of discussion) by sending e-mail, thus eliminating the need for time-consuming face-to-face meetings, or extensive note-taking during phone conversations. The owner can also review the final results through documentation such as spreadsheets. Documents are then shared in real-time with all the team members. Certain files and documents can be marked private allowing certain individuals access via a password. These systems enable the contractor to submit a Request for Information, attach a drawing and copy the appropriate team members for comment and review. Any team member can mark up and redline an attached drawing or photograph in real-time. The architect or engineer can also manage multiple documents during the design phase with "check-in/check-out" capabilities.

#### going global

Companies that concentrate solely on local projects may wonder if they need to invest in Net-based project collaboration. Why think globally when the project is right across town? The reality is that companies are merging and distributing their resources over great distances, and doing it more efficiently than ever before. This is not to say the industry will displace local players, but there are certainly a number of smaller firms being bought and merged into larger and potentially more competitive organizations.

Networking has always been important in construction, but construction today requires a mastery of e-networking as well. This lets a local player become ultra-competitive by allowing them to develop relationships with firms that supply local projects or labour but who are based in distant locations.

In terms of a Web-based construc-

tion system, this means no longer looking at the benefits to a specific project, but rather the benefits across a company's entire portfolio of current and prospective projects. Participating in a comprehensive, global network can spread out costs and increase the potential for higher revenue margins.

e-dollars and sense

Overall, Web-based project management systems help construction companies in several ways — they increase project profitability and productivity, enable clear and effective communications, establish team accountability, reduce the frequency of meetings and minimize the risk of litigation by providing detailed, on-going documentation.

The data being reported is showing that project websites prove to be financially viable when projects exceed \$1 million and the project team has five or more members. Businesses using Web-based project management tools have already noticed dramatic improvements in their productivity. RFI cycle times are being slashed by up to 50% because everyone on the team can look at the routing list to see exactly where the slowdown occurred. Plus, subcontractors no longer have to wait on an answer to a question if the architect is out of town and the plans are locked in his office.

Travel to job sites has been cut by an average of 40%, and the ability to automate the distribution of information allows companies to make better use of their trained personnel. Some shops have reported increases in productivity of up to 70%.

The end result of adding these technological tools to the tool box is that contractors are getting jobs done weeks ahead of schedule, saving them tremendous amounts of money and allowing them to bid on or negotiate more jobs. It also greatly increases their potential for future income by establishing a reputation for working smarter and faster than the competition. There is no going back — the Net is the way of the future. ◻

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