Computing technology has grown up enough to provide contractors with powerful tools.

Computers in Construction

By Tom Klemens and Pat Reband

Computers have pervaded our society, and it is time to consider how they can best serve the concrete construction business. As computing hardware has shrunk from room-sized to pocket-sized, capabilities have skyrocketed. Computing speed and the capability to both process and store data have grown rapidly. We can get (and afford) RAM and hard disk storage that was unimaginable even a few years ago.

So, today, are computers holding you back or helping you? According to Lee Clark, president and CEO of Garber Brothers Precision Concrete, Greenville, Ohio, computers have allowed his company more accurate estimates than ever before. Speaking at CONCRETE CONSTRUCTION's CEO Leadership Forum in July 2003, Clark described how his company has built a job-cost database over a number of years. His estimators can now put together bids based on past costs and productivity, which have been tracked by crew as well as by particular type of work. He says sharing information with both the managers and the workers keeps productivity high and finger-pointing low.

Clark's system also exemplifies how computers have become more interconnected. Today the company uses an integrated Web-based system of reporting time and other job-related information for payroll and accounting. Managers and workers complete daily electronic timesheets and can review their own files at any time.

Tools for the rest of us

A custom-made information system is fine for a company with a computer expert on staff, but good tools are also available for contractors who don't want to build an information system from scratch.

Like computer hardware, software programs—the specific instructions that tell the hardware what to do—have evolved. As mainstream computing has gravitated toward the Windows oper-

TALLY SYSTEMS INC.

Microsoft Excel - CONCRE-1

Estimate® File Edit View Insert Format Tools Data Window Help

B9 = 217.91

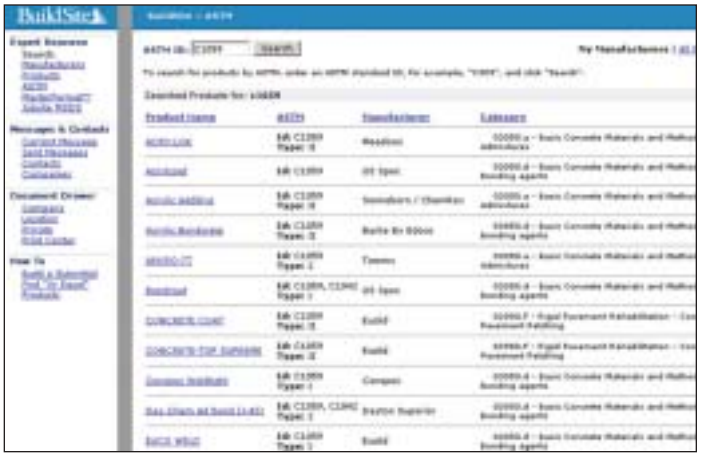
	A	B	C	D	E	F	G	H	I
1									
2									
3									
4	Concrete Worksheet								
5									
6	Item Description	Length	Width	Depth					
7									
8	Wall Footing								
9	Ext. Footing - S/S-3	217.91	1.5	3					
10	Ext. Footing - S/S-9		2	2					
11	Ext. Footing - S/S-7		1	1					
12	Ext. Footing - S/S-2		3	2					
13	Int. Footing - S/S-8		4	2					
14	Int. Footing - S-S-12		1.8	2					
15	Int. Footing - S/S-11		3	3					
16	Int. Footing - S/S-1		1.5	1.5					
17	Keyway - 2 x 6								
18	Footing Steps								

QuickMeasure adds digitizer selection tools to the spreadsheet toolbar and stores shape coordinates with each cell so outlines can be rendered.

EXAKTIME, INC.

Touching color-coded key tabs to the weatherproof, construction-grade clock logs start and stop times.

BUILDSITE



Searching this Web-based service you can match products to specs by ASTM number, MasterFormat, or product name. This example shows the results of a search for products meeting ASTM C1059.

ating system, many program features have become more standardized. Unlike the all-text days of DOS, when learning each new program was a major undertaking, today's applications often look and feel similar. Performing similar functions in different programs is often nearly identical. For example, copying and pasting text are very similar operations in many programs, as are printing, changing text format, and controlling the document's look.

Some special purpose programs, such as QuickMeasure from San Diego–based Tally Systems, build on what you already know about a mainstream program, such as Excel. Designed to automate the measuring process, this program links the input from a roll-up vinyl digitizer and pen directly to your Excel spreadsheet. Using the pen to trace shapes allows you to quickly determine areas and quantities of even irregular shapes. The digitizer feeds the data into your existing spreadsheet so you don't have to learn and adapt to a new estimating package. The result is speedier and more accurate blueprint reading.

As part of the integration, the program adds several new tools into your Excel toolbar, including buttons to select whether you are measuring a line, an area, or a segment, or just counting. Selecting the "eyeball" tool shows an outline of the area represented by the spreadsheet cell. Because this information is stored in the cell, the outlines can be recalled at any time and printed out as needed.

The accuracy of digitizing has also benefited from advances in computer hardware. The digitizer provided by QuickMeasure has a resolution of 2540 lines per inch, which permits very accurate takeoffs.

Time and materials

Contractors are finding time-tracking systems useful. One is Jobclock, offered by Exaktime Inc., Woodland Hills, Calif. The package consists of a rugged, battery powered job clock; color-coded key tabs; two software programs; and a key tab reader that connects through a PC's USB port.

This system allows workers to record job time by simply touching the appropriate tab to the job clock—green tab to check in, red tab to punch out. Additional colored tabs can be assigned to track the start and stop times of various other activities, for example, time in transit, by simply assigning different colored tabs to specific activities.

Jobclock Reader, Palm Pilot software, allows the foreman to collect (but not edit) the data from each job clock. Back in the office, a simple Hot Sync operation loads the data from the jobclock into a data base in the PC. The PC software, called Jobclock Manager, offers a dozen pre-configured, customizable reports and allows the data to be exported to your accounting software. Most Jobclock customers are reporting that they recover their investment in about 6 weeks.

For those who prefer a more integrated, turnkey approach, Houston-based HCSS (Heavy Construction Systems Specialists Inc.) first offered a large-capacity bidding and estimating program in 1986. The package can prepare a detailed cost estimate and easily convert it into a bid, while also allowing last-minute changes. A more limited version is available at entry level pricing for smaller contractors.

HCSS also offers field management software for collecting, disseminating, and dispatching daily jobsite information. Some other HCSS programs are a free Internet-based historical bid pricing tool and a program to track bulk material and truck tickets.

Sourcing information

Besides financial and accounting data, computer information is increasingly important to contractors. Early efforts made to distribute information on floppy disks and then on CDs have been replaced by the Internet—much more practical and functional. Today information on Internet-based services is being updated continuously.

One such service, BuildSite, Oakland, Calif., offers product and technical information online. With more than 150 manufacturers of building materials currently included, BuildSite offers a single starting point to search for materials by ASTM number, MasterFormat, or product name.

Offered by monthly subscription, the service is organized into four modules:

- current product and technical information
- assembling and printing an MSDS documentation packet
- finding "or equal" products
- putting together a submittal package and printing or submitting it electronically—a feature bound to become more popular as owners and general contractors move toward requiring all-electronic submittals.

As with any tool, contractors are finding ways to use BuildSite that go far beyond the original vision. For example, many have begun uploading their standard details and inserting them into the submittal package as well.

Other information services are also available. Seattle-based Onvia, for example, specializes in informing businesses of government opportunities, such as construction bids and requests for proposals. The company's guide is customized to each subscriber's line of work, market territories, and other such considerations.

The next big thing

We live and work in a time of change. And while it has been exciting to watch as computers have become integrated into our lives, it isn't over yet. What is the next big thing? How will computer technology take its next spurt forward? Based on reports from the lab and from the field, the next big breakthrough is likely to be in wireless data communication. And that should spawn even more applications where computers can either help or hold us back. Take your pick. ■

More information:
www.buildsite.com
www.exaktime.com
www.hcss.com
www.onvia.com
www.tallysystem.com

Two for the price of one

If you're still undecided about whether to attend this year's World of Concrete in February, consider this: your World of Concrete registration badge also gives you complimentary access to the A|E|C Systems exhibit hall, just a few steps away. And if you're already planning to come to Orlando, be sure to set aside some time to explore the computer hardware, software, and services being offered there.

This is the first time that A|E|C Systems-Technology for Design & Construction is being held at the same time and place as the World of Concrete. The A|E|C Systems exhibit hall will be located in the Valencia Ballroom on the 4th floor of the Orlando County Convention Center, just up the escalator from the World of Concrete. The exhibit hall will be open Wednesday, February 18 (10:30–5:00) and Thursday, February 19 (9:30–5:00). The A|E|C Systems conference schedule, which includes both innovative information and training, begins a day earlier and continues through the show.

More than 300 companies will be exhibiting on the show floor, demonstrating technology-based solutions for architects, engineers, and contractors involved in designing, building, owning, and managing the built environment. Specific coverage areas include CAD, estimating, structural design and analysis, and project management.

Meanwhile, World of Concrete seminars begin at 8:00 a.m. on Monday, Feb. 16. This year 96 sessions are being offered, including 26 new seminars.

The World of Concrete exhibit hall is open from 9:30–5:00 on Tuesday, Feb. 17, through Thursday, Feb. 19, and from 9:30–1:00 on Friday.

You won't want to miss the Mega Demos presented by Concrete Construction. Tuesday is the Placing Jamboree; Wednesday features Concrete Overlays; and Thursday is the Demolition Derby. All begin at 1:00 p.m. in the outside area. While there, stop by the Artistry in Decorative Concrete section, also sponsored by Concrete Construction, to see some talented people doing amazing things with concrete.

And remember to vote in the Most Innovative Products contest, sponsored by Concrete Construction, Masonry Construction, and Concrete and Masonry Construction Products.

More information, including online registration, is available via the Web at *www.worldofconcrete.com* and *www.aecsystems.com*. The World of Concrete and A|E|C Systems are owned and produced by Hanley Wood Exhibitions.