Faster, Smaller, and More Connected Than Ever

Four technology trends that will change how you build and remodel

by Joe Stoddard

Economic events of the past couple of years are teaching builders and remodelers what other industries have realized for decades: After you've sharpened your pencil and squeezed the last nickel out of your subs and suppliers, there's a good chance you still won't be able to turn a profit unless you can also "lean up" your operation. You've got to add value to your product and ruthlessly eliminate waste while shortening your sales, construction, and service cycle. And technology is really the last, best way to accomplish those goals and push those last dollars to your bottom line.

Since we published our last technology round-up ("Connecting All Contractors," 10/07) several trends have emerged that will influence how successful builders and remodelers will be operating for years to come. Some developments — for instance, near-universal fast broadband Internet access — didn't take a psychic to predict. Others caught us by surprise, such as the explosion of social networks like Twitter and Facebook and their impact on business. So here are four trends to watch, with examples of how some savvy contractors and consultants, big and small, are already taking advantage of them.

TREND 1 Web 2.0, or Word of Mouth on Steroids

Did you happen to catch the AT&T commercial where the little girl has lost her dog? Instead of hoping someone would stumble across the missing pet, a friendly passerby sends a phone picture of the pooch off to his friends, who in turn forward it to all their friends. Minutes later — not days, not even hours — the dog is reunited with happy owner. End of ad.

Substitute "our great remodeling experience" or "the worst builder: avoid!" for "lost dog" and you begin to understand what is meant by the "viral spread" of information. The so-called Web 2.0 is all about collaboration, the easy sharing of information between applications and Web sites. Blog posts, Twitter tweets, Flickr photos, Google Docs, and YouTube videos have one thing in common — they're easily shared online. Look closely and you'll notice little snippets of HTML code or "buttons" that allow you to embed on your own sites whatever information you happen to be looking at. And other people can embed what they find on your blog or Facebook profile somewhere else, causing it to spread like a virus. That ability to share information has given rise to social networking, self-published blogs, do-it-yourself information systems, and personalized home pages, as well an explosion of new Web-based applications that make online collaboration and Web-based meetings less expensive and easier than ever.

Social Media Cuts Both Ways

Online social networks are nothing new. Even before there were PCs, there were dial-up bulletin-board systems. The *JLC* forum community has been in existence for more than 10 years. But it's taken inexpensive broadband access coupled with collaborative applications like photo and video sharing for social networks to really take off. Now that they have, all it takes is one especially vocal subscriber to Angie's List (angieslist.com), My3cents.com, or any of the dozens of other consumer protection sites to land you your next lucrative job — or put you out of business, convicted without a trial.

The truth is, thanks to the social Internet, you're no longer completely in control of your brand. "Reputation management" — monitoring and protecting a business's reputation online — has become a staple for many other industries. Now contractors need to pay attention, too. You should make it a point to know the buzz, good and bad, about your business. Web sites like reputationdefender.com claim to offer some help (for a price), but the best thing you can do is build your own armor by proactively soliciting solid customer reviews on the various contractor review sites. It's much tougher for one customer from hell to trash a contractor if he has 50 positive reviews from other buyers, an

active blog, a pile of Facebook fans, and a healthy gaggle of followers on Twitter. So if you've been wondering whether tweets, blogs, "friends," and "followers" belong in your future, now you know: Protecting yourself from the Internet bullhorn could be reason enough to jump in.

While you can rest assured that the names are going to change, make no mistake: The social media train has left the station, never to return. Facebook is now the second most used Web site on the planet after Google, and Twitter is inching toward the top 10, according to alexa.com. (I can't begin to cover all of the ways here in which builders and remodelers need to make use of social-networking tools, but I invite you to join the conversation at the Business Technology forum at jlconline.com.)

Broadcast Yourself

When YouTube first came on the scene in 2005 it was mostly filled with amateur attempts at "America's Funniest Home Videos," and I'll admit I didn't get it. But I sure get it now. If a picture is worth 1,000 words, a 10-minute Web video could be worth 100 sales that you otherwise wouldn't have, or 500 mistakes your crew doesn't have to make. Of all the trends we're covering, Web video may wind up being the most important. Not only is YouTube currently the No. 1 video site on the Internet, it often ranks second in search results and is fourth in total traffic globally, after Google, Facebook, and Yahoo. That's huge — and the really good news is

that it's no tougher for you to have a great video on YouTube than it is for Home Depot or Lowe's to have one.

Greg DiBernardo, owner of Fine Home Improvements of Waldwick LLC (finehomeimprovements.com, bergendecks.com) is leveraging YouTube to drive traffic to his Web sites. "Recently, to showcase our products, we added a simple slide show in YouTube created with the free 'save to YouTube' feature of Google Docs," he says. "We also cross-market by posting project photos and videos on Facebook.com. While our roots are in general remodeling, the Internet has opened up a such a steady flow of qualified deck leads to us that it enabled us to quickly establish ourselves as a deck-building specialty company." Bergendecks .com, he adds, "has great Google ranking, so anyone looking to build a deck in our local area finds the site, sees the type of work we do, and educates themselves at the same time. Our close rate on leads directly from our own site is around 80 percent."

The explosion of simple-to-produce, simple-to-share Web video has made it possible to distribute any kind of information imaginable quickly and inexpensively.

Installation and training. Remember that YouTube videos can be played on many smartphone devices. If you're dealing with tricky high-risk installations, why not have your factory rep or an expert installer shoot some installation videos your crew can watch on their phones? If your subs speak Spanish, create a silent video or add a Spanish soundtrack after the fact.

Homeowner how-to. How many frantic phone calls could be avoided if your buyers had a 24-7 resource they could refer to anytime they got stuck? By making a Web video of your homeowner orientation tour, you'll not only help clients remember how to winterize the lawn sprinklers or tilt in the windows for cleaning, you'll also be documenting that you actually did the orientation tour.

Marketing. In sales, the only thing more powerful than a third-party testimonial is a video with your customers singing your praises. Interview your buyers on camera and ask them to recount a funny story from your job or explain how your crew solved a specific problem that cropped up.

No camcorder required. You don't even need a camcorder to make a video. In addition to the "save to You-Tube" feature in Google Docs, there are automated tools like Animoto (animoto.com) that can create a professional-quality video from your photos, text, and music.

The social Web has been instrumental in helping remodeler Greg DiBernardo escape local low-price bid wars and find a niche in high-margin custom deck-building.

TREND 2 Tracking All Information, Anywhere, Anytime, and on Any Device

By the time you read this, Windows 7 and Mac OS 10.6 will be duking it out as two of the best computer operating systems ever created — yet it won't make very much difference in how most of us use technology. The focus of personal computing is quickly moving from the desktop to the Webtop, where data and applications live in the Internet "cloud" and can be accessed just as easily from a smartphone or netbook — a mini laptop — as from a computer. Cheap, available broadband service has given rise to hundreds of Web-based applications and services that will prove useful to contractors. Practically any category of commercial software you can think of, from office to project management, now has free or cheap equivalents, many of which are totally Web based.

Computer in Your Pocket

On the hardware front, things keep getting smaller and cheaper, as well as more connected. Today's smartphones are as capable as laptops were a few years ago, and some of the most exciting software today is being created for the Apple iPhone, Google Android, and R.I.M. Blackberry, not for computers. Netbooks can run Windows, bridging the gap between smartphones and full-size computers, and are available for as little as $199 (with a cellular Internet contract). Because of a contractual limitation imposed by Microsoft, netbooks ship with only 1GB of RAM (memory), but most can be upgraded to 2GB for under $50. By the time you read this, Windows 7 netbooks may be available.

Online everywhere. Online project management systems are most effective when everyone involved with the job can use them. As cellular companies continue to expand their services into the boonies, access to the Internet on job sites is less of an issue, but at $60 a month for 5GB, data transfer still isn't cheap. Connection-sharing devices like the Novatel MiFi Personal Hotspot will let your lead carpenter share a connection with up to five WiFi-equipped subs.

Augmented reality. If you watch sports on TV, you're already acquainted with "augmented reality": It's easy to forget that the yellow first-down line isn't really painted on the field. Look for something similar coming to a smartphone, GPS receiver, or computer near you. Imagine you're looking at building sites with a client. In the near future, you'll be able to point your phone camera at an empty building lot and have your 3-D CAD model

Verizon Wireless is offering the normally $499 HP1151NR mini laptop for $199 with a two-year data contract. Its bright screen and ability to get online anywhere makes it a good job-site companion. Windows 7 versions may be available by the time you read this.

Expect to see more devices like the Novatel MiFi, which allows up to five WiFi-equipped devices to share one high-speed cellular internet connection. The $99 (with contract) MiFi is available from Verizon, Sprint, and several minor cellular providers.

Layar, shown here providing a "jobs available" overlay for a temporary jobs service in Amsterdam, is the first of what will be many "augmented reality" applications.

of the house appear, along with the lot price, tax, and plat information — plus the location of municipal services overlaid in "virtual marking paint" on the ground. You can send the whole overlay back to your office to use in sun or energy studies or to relocate your pipe entrances on the foundation plan.

Later, when you're at the building supply and come across a new type of tile membrane, you can forget the guy in the orange apron — just point your phone camera at the bar code, and a set of technical specs and installation videos will be zoomed to your phone. Need them in Spanish or Chinese? Not a problem.

One of the first working examples of augmented reality is the Layar Reality Browser (layar.com), available now for Samsung's Android-OS powered smartphone. Layar works by taking advantage of GPS (global positioning systems), along with the phone's accelerometer, compass, and camera. It rolled out to businesses in Europe last year and is currently in development with several USA-based partners to deliver property details to home buyers visiting Layar-enabled neighborhoods.

Tracking Systems

GPS is more useful for contractors than ever. With it, a phone camera can "geo-tag" job-site photos, proving that the footing rebar or window flashing was on the current project and not fudged from somewhere else.

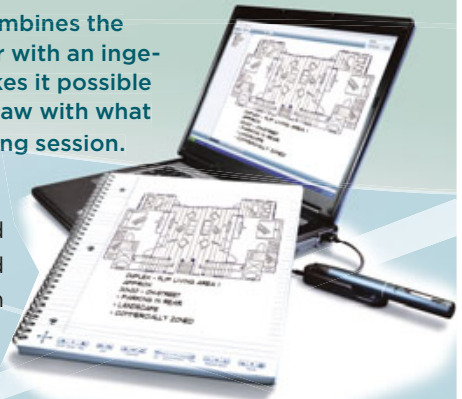## Emerging Hardware Trends: Pico Projectors and Smartpens

Even though your smartphone has a usable keyboard, can run all the software you'll ever need, and is virtually a video production studio, you still can't have a meeting huddled around a 2-inch screen. Get ready for the pico projector. It's already available as a stand-alone device not much bigger than a smartphone, and within a couple of years you'll see it built directly into your phone, much like a camera is today. A pico projector can project a usable 2- to 3-foot image on anything from a scrap of drywall to a T-shirt, making it possible to fire up that 3-D model, CAD drawing, or installation video wherever and whenever you need to.

If even a netbook or smartphone is too bulky for you, try a "smartpen" like the $170 LiveScribe Pulse (livescribe.com).

LiveScribe's Pulse digital pen combines the convenience of old-school paper with an ingenious recording system that makes it possible to correlate what you write or draw with what you heard in a meeting or planning session.

This ingenious system records and synchronizes both pen strokes and sound. In playback mode, you can "touch" a note and play back whatever was being recorded at that moment. It's perfect for documenting design requirements, contract negotiations, inspections and walk-throughs, or just jogging your memory.

LiveScribe works by tracking a grid of tiny dots on special paper. You can buy preprinted LiveScribe paper or print your own. Your "pencast" can then be downloaded to the LiveScribe desktop software or shared on the Web. Additional software is available ($29) that will convert the hand-written notes to searchable text.
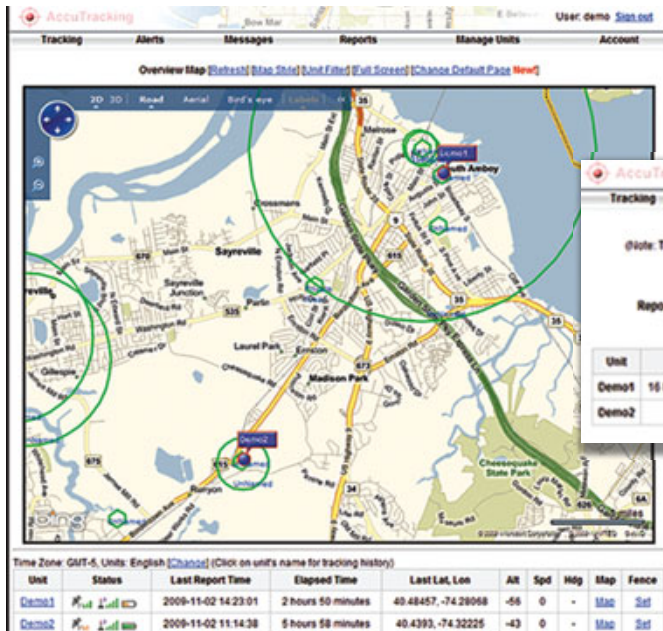
Essex, Ill., remodeler Eric Carlson uses LiveScribe when doing walk-throughs for estimating. "I'm able to make sketches and write some key words while providing spoken details that I can easily refer back to later when preparing the quote. Everything syncs to a desktop PC and the words in your own handwriting are searchable. Everything can be uploaded to a free Web site that allows you to share your pencast with clients or others. Nobody realizes it is anything special, which allows me to focus on the client instead of the technology."

You can already purchase pico projectors from Optoma and others, starting at around $230 for a stand-alone unit. Within the next few years you'll see pico projection capability built in to your smartphone.

For about $8 to $10 per month per user, AccuTracking will document every move of a registered device (typically a GPS-equipped cellphone or vehicle) and report back to the contractor.

Point-to-point GPS driving instructions already save salespeople and workmen hassle, time, and fuel, but that's just the beginning. Rick Westmoreland, a builder and renovation contractor in Kansas City, Mo., loads AccuTracking, a tracking software, on all of his field workers' phones. "When the economy slowed down," says Westmoreland, "I shifted from home building to weatherization contracting and wanted a better way to track and report timecard information for Davis-Bacon prevailing wage compliance. AccuTracking allows me to preload job-site locations, then track when workers enter and leave each site, their travel time, and time spent at the supply house. It will even text me when they arrive or depart a location."

For businesses who want their customers to be able to "see" their service vans on a map, AccuTracking data can be integrated into the company's Web site, Facebook account, or iGoogle personal home page. It also has an application programming interface (API) so developers can embed the information into their own software applications.

TREND 3 More Applications Move to the Web

Now that high-speed broadband is relatively cheap and widely available, Web-based applications and services have finally taken off as a viable alternative to desktop software and even small business networks. It's tough to justify the cost and administrative hassle of an in-house server and extra network infrastructure now that just about anything you would use a small-office server for can be done for less using the Internet.

According to Greg Cashen, P.E., a senior manager for the Phocis Group, a construction and consulting company in Northern California, "One of the biggest things to come out of the Web 2.0 world is a wealth of inexpensive Web-based project management, client relationship management (CRM), and collaboration tools. At our company, we use tools by 37signals [37signals.com], specifically Basecamp for project management and collaboration and Highrise for tracking deals and correspondence with prospects. Clients have access so that there's one place for them to go for their project files and messages. There are other tools that are tailored to our industry, but for the combined price of $48 per month — not per user — Basecamp and Highrise are hard to beat."

Accounting software has been one of the last things to make the leap onto the Web, probably because of security concerns, but today there are online replacements for QuickBooks. Phocis Group has made the break from office accounting software, too, in favor of Xero (xero.com), a Web-based full-featured accounting tool. Says Cashen, "Xero provides our invoicing, expense management, AR/AP, and all the other features expected from an accounting software. The invoicing and expense management features alone are indispensable."

Remote Meetings and More
Web-based meetings are another category of software that is quietly changing how contractors do business. Instead of trying to get people together in person, a builder can fire up a Web meeting, share drawings and documents on-screen, or even look around the job site with a Web cam. Problems can be

resolved or decisions made in minutes instead of days or weeks.

For several years WebEx (webex.com) and GoToMeeting (gotomeeting.com) have provided reliable — albeit relatively expensive — online meetings and screen-sharing. But free is better for contractors, and acrobat.com, www.yugma.com, yuuguu.com, and dimdim.com all offer reliable free online meetings — DimDim for a whopping 20 participants.

Eric Carlson, owner of Crafted Character, a remodeling company in Essex, Ill., uses online meetings on a regular basis. "I can present project details to customers and other tradespeople at the same time, with each of us in different locations," he says. "I use Chief Architect and SketchUp to create 3-D renderings of the project. I can then review with the client, architect, and designer at the same time without the travel logistics, or all being huddled around a single laptop. I use the acrobat.com ConnectNow service, which is free for up to three simultaneous users. You can share your entire desktop, or just the applications you want others to see. It works great and has been well received by all those involved so far."

DIY information systems. You no longer have to find the information you need — it can find you. Thanks to a mechanism known as RSS, for Really Simple Syndication, it's possible to have Internet news and information that interests you delivered and organized exactly the way you want it, in a "feed reader" — a personalized home page of your choice.

"In addition to *JLC* forum posts," says Greg Cashen, "I also subscribe to RSS feeds for articles from *JLC, Big Builder, Building Design & Construction, Commercial Property News,* and *Retail Traffic,* among others. Doing so has allowed me to drastically reduce paper waste while getting access to articles that help me make business decisions and stay informed on the industry."

More for free. The past couple of years have brought an explosion of new applications — both industry-specific ones and generic ones that can be tweaked to work for a builder or remodeler. For every big-name commercial title, there's a good bet you'll be able find a free or cheap alternative. If you're on a budget, alternativeto.net is a good place to start.
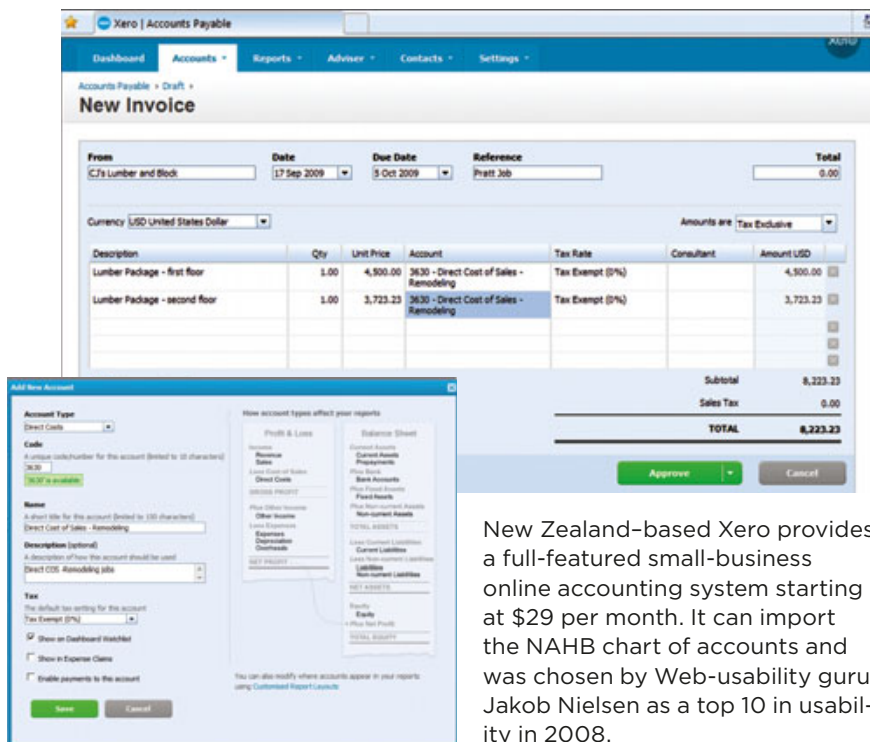

New Zealand–based Xero provides a full-featured small-business online accounting system starting at $29 per month. It can import the NAHB chart of accounts and was chosen by Web-usability guru Jakob Nielsen as a top 10 in usability in 2008.
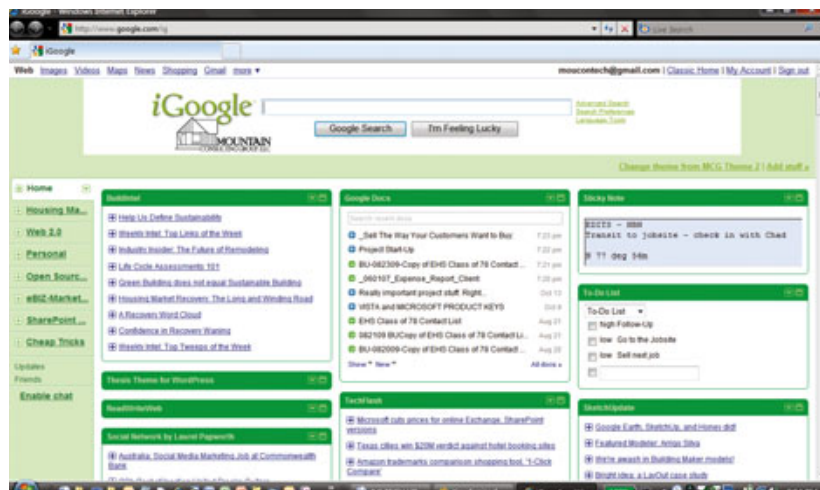
Contractors can now design personalized home pages that get daily updates via RSS (Really Simple Syndication) feeds from a wide range of sources. This iGoogle example (igoogle.com) combines industry Web sites and blogs with desktop "widgets" — mini-applications displaying to-do lists, document lists, and other productivity tools. MSN, MyYahoo, pageflakes.com, and netvibe.com offer similar personal home pages.

TREND 4 Online and Offline, the Best of Both Worlds
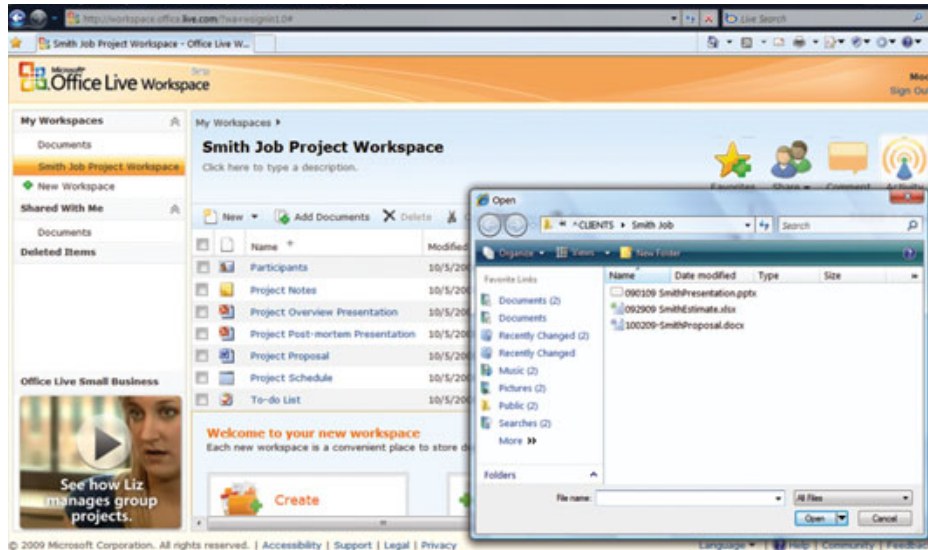
Office Live is based on the SharePoint engine, which turns Microsoft Office into a true collaboration platform, with project-centric document management, photo libraries, contact and task lists, and more. Hosted versions of SharePoint start at under $10 per month at apps4rent.com, making it one of the least expensive collaboration choices. Office Live offers Microsoft Office users some of the same features for free.

Despite faster Internet connections, some software applications — like CAD, estimating, and heavy-duty engineering number-crunchers — still work best installed on your PC. Software vendors are taking advantage of the Internet with shared libraries, online help systems, and collaborative frameworks like Microsoft's SharePoint. If you use Microsoft Office but feel that you aren't quite ready for SharePoint, there's Office Live (officelive.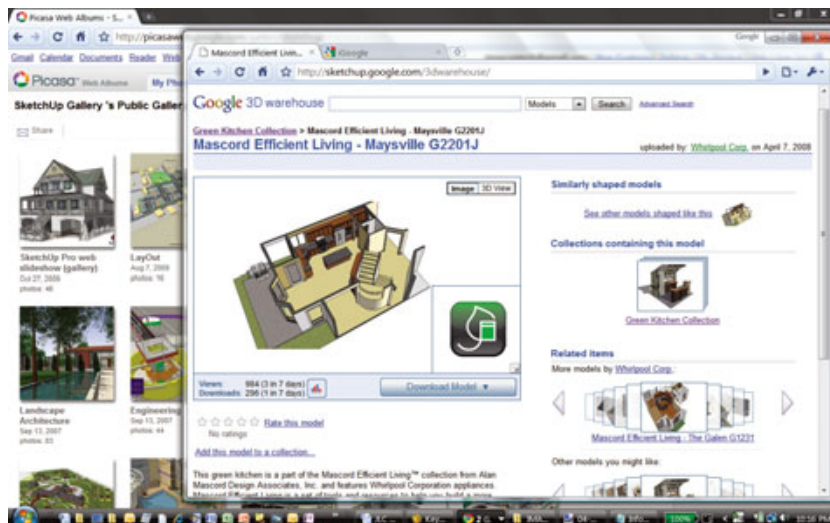com) for free. Based on SharePoint, Office Live offers online file sharing and storage, as well as various features for small businesses, like a free Web site.

Google has also taken advantage of the online-offline approach with SketchUp (sketchup.com), its groundbreaking 3-D design application. Google's online 3D Warehouse provides users with a place to upload and collaborate on thousands of 3-D components. Google also makes use of its other major acquisition, YouTube, to store SketchUp training videos, and its photo-sharing service Picasa Web Albums to maintain a gallery of sample images.

The Google 3D Warehouse contains thousands of 3-D components — both user-created and professionally modeled — for use in Google Earth and SketchUp projects.

Your Second Brain

In the past couple of years, another class of software known as "intelligent information assistants" has emerged to bridge the online-offline gap. These include Microsoft OneNote, DevonThink, Zoho Notebook, and perhaps the most powerful of the bunch — and the most popular with contractors — Evernote (evernote.com). This program combines the ability to gather and store bits of information from just about any source you can imagine — from a Web-site clipping to an actual paper document — with a powerful online database and indexing capability that makes it easy to
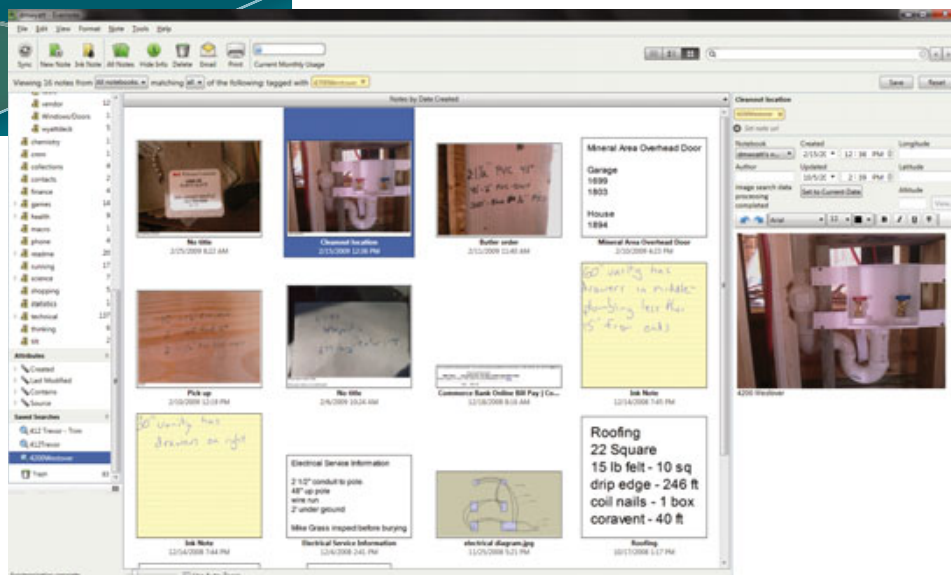
retrieve whatever you're looking for. Evernote has versions of its client software for PCs and Macs as well as a variety of smartphones, or you can run it from a Web browser on any Internet-connected computer.

Dustin Wyatt, owner of Wyatt Homes in Desloge, Mo., has been using Evernote to store and catalog day-to-day information of all types. "You can either enter a note on your smartphone or you can write a note on a scrap of lumber or drywall — or even on your hand — and snap a picture of it with your camera phone," he says. "Evernote will convert it to text and make it searchable. It's then retrievable on my phone, in Evernote on my laptop, or on the Evernote Web site from any other computer or device." Wyatt takes photos of products at the supply house, or of potential customers and their business cards; all the text in the photo is recognized via Evernote's OCR (optical character recognition) software, so the photo is searchable. "Evernote recognizes the text with amazing accuracy," he says. "I can also create notebooks of research for products or projects with the Evernote Web browser by capturing Web pages. Span tables, code books, how-to information — if it's available online, I can organize and search it in Evernote."

Actually, with improvements in speech-to-text technology, you don't need to write or type at all to make use of Evernote, Social Media, and many other online tools we've mentioned here. Jott (jott.com) is an online speech-to-text engine that will let you update with your phone and voice just about anything that you'd normally need a keyboard for. Accuracy isn't perfect, but it's good enough for many applications.

Bridging the Generation Gap

If you're 40-something or older, there's a good chance computers and the Internet are something you learned to deal with long after you were in the workforce, and you still may not be completely comfortable with them. Not so for Generation Y, those 75,000,000 Americans who were born roughly between the mid-70s and the mid-90s and have never known life without technology. As your new generation of customers, they will expect you to be as tech-savvy as they are. And as your new generation of competitors, they're going to clean your clock if you aren't.

There's a noticeable difference in attitude toward technology between older and younger contractors. For example, while most established builders and remodelers have Web sites, you're apt to find that they contain all kinds of dire warnings and copyright notices warning users not to copy or distribute the images of floor plans or 3-D renderings. New-gen builders are more apt to realize they're selling houses, not photographs. They're likely to encourage sharing by making use of a photo sharing service like Flickr (flickr.com) while including a visible watermark on their images with their Web address and phone number visible, so it's easy for someone to contact them.

Wyatt, who's in his 30s, is typical of the tech-savvy GenY builder. "As time goes by," he observes, "guys like me are going to be less and less willing to deal with subcontractors who will only give out quotes by fax, and vendors who don't have their inventory available online. I appreciate the knowledgeable guys behind the counter as much as the next guy, but when their competitor provides the guys behind the counter plus the online access to pricing and inventory, I'm going to go to that competitor. I often see guys talking about computers or the Internet as if it's some other world, separate from the real world. This attitude bewilders me, as technology is just a part of the world, not some other thing. For us technology isn't a nice thing to have, it's a necessity."

Joe Stoddard is a JLC *contributing editor and technology consultant to the building industry. He moderates the jlconline Business Technology forum.*

Evernote's Web site says, "Welcome to your notable world. Use Evernote to save your ideas, things you see, and things you like. Then find them all on any computer or device you use. For free." Well, almost. A premium account costs $5 per month or $45 per year, but it gets rid of the ad banners and gives you more options for saving and retrieving information.