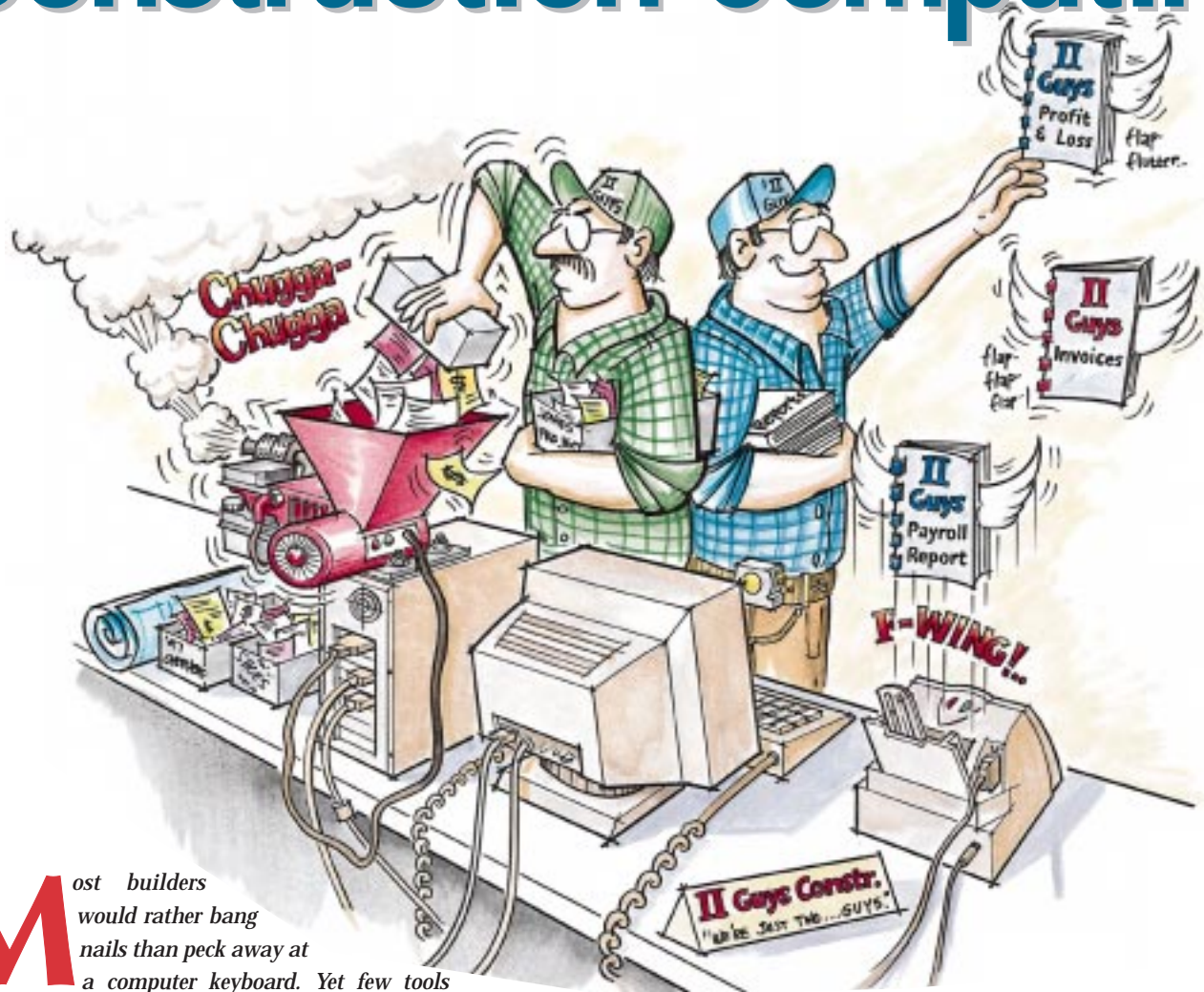# A PRACTICAL APPROACH TO
Construction Computing

Most builders would rather bang nails than peck away at a computer keyboard. Yet few tools can improve a contractor's business operations — in the office and in the field — as much as a computer and a good set of software applications. While most contractors are familiar with or use word processors and checkbook-based bookkeeping systems, it's the estimating, job-costing, and scheduling functions that cause the most frustration when moving from a manual system for creating and maintaining records to a computer-driven system.

Our expectations for these software applications are high: They must be able to run right out of the box, with a minimal learning curve, and they shouldn't cost an arm and a leg. But until that killer app comes along that will run our business without our being in the office, we're stuck with what's available and the reality that if we're not organized, no amount of software is going to organize our business for us.

We asked four contractors to tell us about the software application — or combination of applications — they consider indispensable to the running of their companies. While each builder takes a different approach, the programs they prefer fit their personalities and the way they run their businesses.

Four contractors describe the software applications that help them organize their businesses

MICHAEL MUNDY

Mundy Construction Services, Inc.
Campbell, Calif.
Business: Residential remodeling, specializing in kitchens and baths; in business 25 years.
Size: 2 in the office, 3 in the field
Computer: Two networked Pentiums
Software: MasterBuilder (job-costing); HomeTech (estimating, specifications); Chief Architect (design/build); MS Word (correspondence, contracts).

Michael Mundy uses HomeTech Advantage software to produce accurate detailed estimates. He finds HomeTech's built-in pricing to be right most of the time, though the program allows him to customize the numbers and add categories as needed to match his way of working.

For job-costing, Mundy manually enters the estimate category totals from HomeTech into a DOS version of Master Builder. The program creates a variety of reports, including the estimate-to-actual comparison seen here.
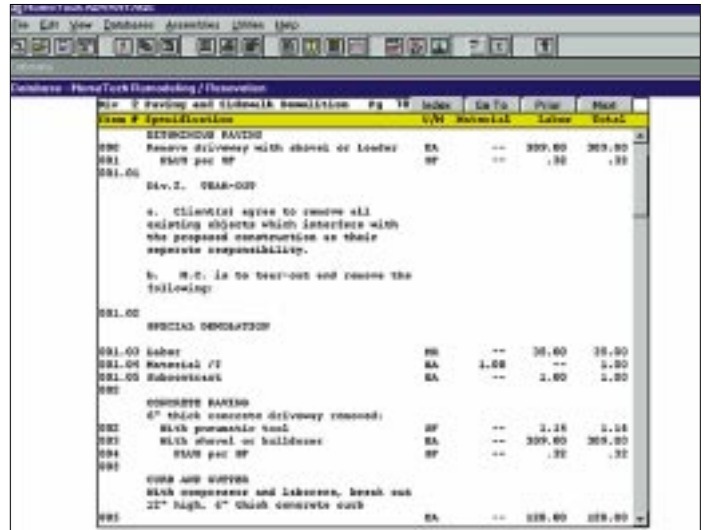
I started with computers 11 years ago, when my business was entering a rapid growth stage and I wanted a way to track job costs and speed up specification writing. Using the computer for job estimating would come later. From the beginning we've had two computers, one for my wife, who does the accounting and job-costing, and one for other employees. This worked great when we had several employees, and still works well today when there are just two of us in the office. We're linked by a network so we can access each other's files.

Since I had been estimating manually for several years using the HomeTech system, I purchased their DOS version and installed it on my computer. I've upgraded the software regularly and now run the Windows version and subscribe to the quarterly up-dates. I like the HomeTech system because it gives me a good overall feel for the project and helps me catch portions of the work I might have otherwise overlooked.

HomeTech is based on unit-cost pricing. The remodeling estimator (there's a separate program for new construction) has 25 categories, such as tear-out, floor framing, electrical, interior walls, and so on. Each category is broken down into smaller parts. For example, the category for floor framing contains unit costs for all-weather wood foundations, beams and columns, floor framing, I-joists, and subflooring. Each of these sub-categories is further broken down, giving construction specifications and unit costs for performing each task. The estimator works by identifying the specifications that match the job at hand and entering the quantity — square foot, linear foot, cubic yard, and so on — needed to complete the work. Overall, I've found that HomeTech's pricing is right, as is, 90% of the time. But HomeTech allows you to insert new cost codes and pricing so you can modify the system to fit your way of working. Also, I have a separate sub-category for additional labor and material if I think that the job is going to run more than the unit prices suggest.

My wife looked at several job-costing programs before settling on Master Builder. Once again, it seemed a good fit for the way our business was organized; it provided the reports we wanted and tech support was good. Although Master Builder has an estimating module, we continue to use HomeTech for estimating.

We integrate the two applications by printing a list of total material costs, total labor costs, and total job costs for each of the 25 HomeTech categories. My wife then manually enters this data by job name and HomeTech category into Master Builder; it takes her three to four minutes to enter a typical

job. Information from our time cards, which use the same 25 HomeTech categories, as well as material costs by category are entered into Master Builder, which then generates job costs and compares actual versus estimated costs.

If there's a drawback with the HomeTech software, it's that it uses a cost database created by someone else. But from my experience, it works well because the baseline estimate is realistic, and I can always include a fudge factor if I think the numbers aren't right. Also, your estimate will be off if you don't include all the components of the work in your estimate, and Hometech ensures that we don't forget anything. For us, actual job costs typically run 3% below the estimated cost.

SCOTT SHELLEY

Scott C. Shelley Construction
Petaluma, Calif.
Business: High-end residential remodeling, partnering with architects
Size: 3 lead carpenters
Computer: Pentium desktop and Pentium laptop connected by Laplink
Software: WordPerfect (correspondence, contracts); Quattro Pro (spreadsheet, translator); WinEst Pro Plus (estimating); ACT! (contact management); QuickBooks Pro (accounting, job-costing, invoicing); MS Project (scheduling).

A former employer introduced me to computers in 1987, so when I started my own company in 1989, I was ready to adopt them for my company. The clientele I work with — high income earners who require a lot of attention — expect me to be organized and to present information to them in a professional way, and my computer and software allow me to do that.

My laptop has a cellular-capable modem that allows me to go online anywhere, dial up my office computer, and download files. Although I don't do this frequently, there are times when I'm on the job site and need quick access to information, such as an estimate file or cut sheet on an appliance we're installing. I've also used my laptop to show my lead carpenters project costs relative to the budget.

I had been using a big vertical DOS accounting package for my business and Quicken for my personal finance. When QuickBooks Pro (see "Setting Up QuickBooks Pro for Construction," 9/97) came out, I looked at it and bought it without anyone's recommendation; it just seemed that it would do what I wanted it to do. I've upgraded continuously and now run version 5.

The current version comes with a chart of accounts for contractors, covering such business expenses as insurance, equipment purchases, office rent, telephone, and so on. About 60% of the categories will work for the typical remodeler. The rest of the chart can be tailored to suit the needs of the individual contractor. One nice feature of QuickBooks Pro's chart of accounts is that it can be set up using a numerical- or letter-based system.

QuickBooks Pro's strength lies in its use of classes, which can be set up to accommodate the remodeler's way of organizing his business. For my company, I have adopted the Construction Specifications Institute (CSI) format for estimating. CSI divides the various phases of construction into 16 categories, such as general conditions, concrete, woods and plastics, thermal and moisture protection, electrical, and so on. Using the CSI breakdown, I create a job estimate in WinEst Pro Plus (which comes with CSI-based cost data that I've modified for my business), save it as a text file, and dump it into a Quattro Pro spreadsheet, which then loads the data into QuickBooks Pro with its associated customer and job name. It sounds awkward, but the the whole process of transferring the data takes less than five minutes and allows me to estimate with my preferred software. And I'm now ready to track job costs and create reports.

Scott Shelley uses CSI-based categories in WinEst Pro Plus for estimating (top screen). He then exports the data from the estimate as text into a Quattro Pro spreadsheet (middle screen). In Quattro Pro, a macro Shelley has written reorganizes the information under column headings that QuickBooks Pro will recognize (bottom screen). This workaround allows Shelley to estimate with his program of choice, then use the information from the estimate for accounting and job-costing functions.

What I really like about QuickBooks Pro is that it can generate lots of reports, such as payroll, general liability insurance premiums, 1099s, invoices, job-costing, and annual profit and loss. If I don't like a preset report, I can create a custom report for my unique needs. Quickbooks Pro also provides information about my workers comp exposure, although it doesn't

give me the detail I need to minimize my comp premiums.

QuickBooks Pro is weak on estimating, but would work for a specialty contractor, such as an installer of replacement windows who needs only a few components to create an estimate. However, I have modified QuickBooks Pro's estimating ability to provide me with invoices for progress payments based upon work completed. For example, on larger jobs, I group together tasks in the order in which the work will be completed. I call these groupings Draw 1, Draw 2, Draw 3, and so on. Each draw has the same approximate value: A $50,000 job with five phases would have five draws of $10,000 each.

On the 15th and 30th of each month, I visit the job site and assign a "percent complete" number to each group — demo, excavation, framing, and so on — and enter this percentage into QuickBooks Pro. The program will then compute the value of work completed to date, deduct payments received, and provide an invoice to pass along either to the architect for approval or directly to the homeowner for payment.

JEFF RIDENOUR

JR Electric

Santa Barbara, Calif.

Business: Electrical contractor specializing in "smart home" wiring systems

*Size:* 8 employees

Computer: Mac PowerPC Clone

Software: QuickBooks Pro (estimating, accounting); MS Works (correspondence, contracts, change orders, contact management); GlobalFax (communication).

My first experience with computers was a disaster. Twelve years ago, when I started my own business, I purchased a PC with a DOS operating system. I felt so overwhelmed trying to learn the computer and software applications, I gave the system to my bookkeeper. Five years later, a contractor friend told me I didn't have to be afraid of computers and introduced me to Macs. I immediately took to the Mac and it has become an integral part of my business.

QuickBooks Pro is an excellent accounting package. I use it for estimating, accounts payable, accounts receivable, invoicing, check writing, and profit and loss statements. It gives me instant access to the financial health of my company and allows me to know exactly where I am with each job. This last feature is very important to me as I often run several jobs simultaneously.

The most versatile software I use is MS Works, which is a suite of applications. It has drawing, word processing, database, and spreadsheet programs, and allows me to move information back and forth between them. Works is a midrange program without a lot of the bells and whistles of the more expensive programs, but it does everything I need for my business; plus there are aspects of the suite that I have not yet discovered.

Since I am in the office most of the time, I need a program that will provide me with a way to transmit information quickly and accurately to architects, engineers, electricians, and homeowners. Since we work with high-end wiring, such as home movie theaters and "smart house" electronics, it's important for me to be able to convey information in many formats. For example, I use the drawing program to create electrical wiring diagrams and to illustrate correct installation of electrical hardware. I have created templates for the most common examples, which I can
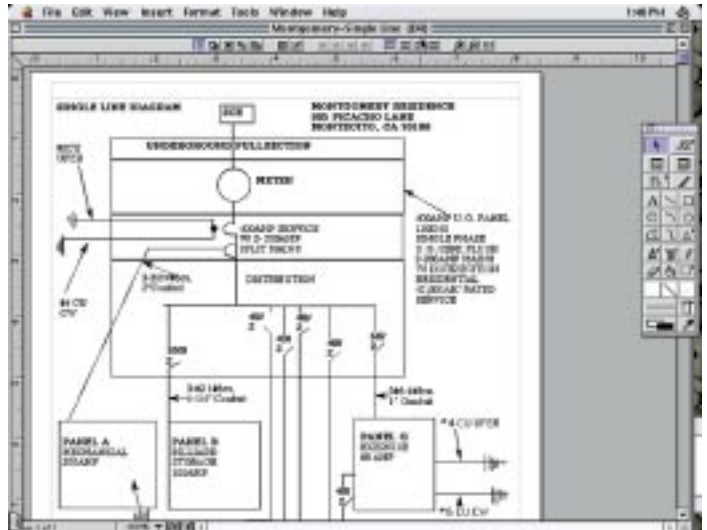
Using the drawing program in MS Works and a fax modem allows electrical contractor Jeff Ridenour to stay in the office but quickly communicate critical details to field installers, builders, or architects.

For change orders, Ridenour has created a template in MS Works' spreadsheet. He simply pastes in client information and cost data, and the spreadsheet automatically calculates the totals.

quickly pull up, modify, and (using GlobalFax), fax to the person requesting the information — all without leaving my computer.

I have also adapted the spreadsheet function of MS Works to generate change orders. Again, I created a template that contains my standard change order language. I then laid out the columns and rows in the spreadsheet so that I can enter quantities, labor, material descriptions, and pricing in individual cells, complete with mathematical formulas that compute the total cost of the additional work. I have also created a catalogue of frequently used materials that I can paste into the spreadsheet. When I'm ready to prepare a change order, I pull up the template, modify the language to suit the work, paste in material specs, and fill in the cells. It's not uncommon for a single change order to run seven or eight pages, and the spreadsheet format helps eliminate mistakes that I would make if I were manually entering the information. I can also attach a sketch for clarification.

I'm a firm believer in providing information to everyone who needs it, so I frequently send faxes. I refer to my contacts in MS Works' database as "Names and Numbers," and keep this icon at the bottom of the monitor so I can access it at any time. When I need to fax someone, I pull up their name, attach the document, and fax it to them. Since I run the business myself and there's no one to fill in for me when I go on vacation, I'll broadcast a fax to as many as 35 people letting them know of my absence; I program my computer to do this after business hours.

MIKE HAMMAN

Mike Hamman General Contractor
San Francisco, Calif.
Business: 50% light commercial; 50% residential; specializes in structural improvements and seismic strengthening; in business 25 years
Size: 3 to 6 employees in field
Computer: 486 DX clone
Software (DOS): Word Perfect: (correspondence, contracts, specifications, change orders); Timberline (estimating); Paragon (job-costing, accounting).


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Workers Comp Rates as of Jan 1, 97

Code    Description        Rate
0042    Landscaping        .0746
5027    Unit Masonry       .0951
5183    Plumbing           .0634
5190    Electrical         .0510
5213    Concrete           .0761
5225    Rebar              .0683
5403    Carpentry          .1584
5432    Journeyman >$21    .0558
5446    Sheetrock          .0659
5474    Painting           .1130
5484    Stucco             .1024
5650    Termite Work       .0619
6218    Excavation         .0475
8227    Contractors Yard   .0433
8810    Clerk              .0045
9008    Janitor            .0750

With 81% Exp Mod.
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Using Paragon, a DOS integrated accounting program, Mike Hamman is able to more easily track his employees' workers comp rates. The insurance reports he generates (below) save him thousands of dollars annually in premiums.

I'm terribly cheap, so I'm always pursuing ways to reduce my overhead and take every deduction possible. For example, in California, workers comp rates are based on the type of work an employee is doing at any given time during the day. Since the rate for carpentry can be two or three times the rate for other categories, being able to carefully track how my employees spend their time can save me several thousand dollars on my annual premium.

Unfortunately, the payroll service I used 18 years ago was unable to provide me with the degree of accuracy I needed, so when XT clones came out, I bought one. I had heard it was possible to devise your own accounting system with a spreadsheet, and that was my first application. But I found it overwhelming and never did anything with it. I then bought Dac-Easy (which is similar to Quicken) and learned the program very quickly. But after six months, I realized it was inadequate for my needs.

Dac-Easy did, however, show me that, although my needs seemed simple they weren't. I was tired of tracking job costs and workers comp categories with a pencil, ledger sheet, and an adding machine. I realized I needed a software program that would integrate payroll with accounting as well as do estimating and job-costing. So 15 years ago I bought Paragon, an integrated accounting package, and have been using it ever since.

Workers Compensation Insurance Report Worksheet

Work Comp Code	Transact File No.	Transact Posting Date	Employee Last Name	Pay at Straight Time	Am't Actually Paid	Exempt Excess Pay	Work Comp Prem.
5403	49708	09/19/97	Salazar	74.38	74.38	0.00	11.78
5403	49716	09/19/97	Flores	127.50	127.50	0.00	20.20
5403	49721	09/19/97	Wartburg	289.00	289.00	0.00	45.78
5403	49725	09/19/97	Flores	45.00	45.00	0.00	7.13
5403	49734	09/19/97	Wartburg	68.00	68.00	0.00	10.77
Totals for WC Code 5403				603.88	60.388	0.00	95.66
Begin Next Code Or Display Final Total							
5446	49709	09/19/97	Salazar	148.75	148.75	0.00	9.80
5446	49717	09/19/97	Flores	382.50	382.50	0.00	25.21
5446	49722	09/19/97	Wartburg	289.00	289.00	0.00	19.05
Totals for WC-Code 5446				820.25	820.25	0.00	54.06
Begin Next Code Or Display Final Total							

Integrated accounting systems can update the general ledger, and job-cost, list accounts receivable and payable, complete payroll, print checks and invoices, and provide a multitude of reports about the financial health of your business.

Learning to use Paragon forced me to take a closer look at the way I ran my business, which until then I had been running out of a shoe box. I realized that if I wanted Paragon to compile the reports I needed, I would have to systematize my business in a way the program would understand. So I adapted the CSI numbering system for estimating and job-costing. Using Timberline, I built my own assemblies — groups of tasks
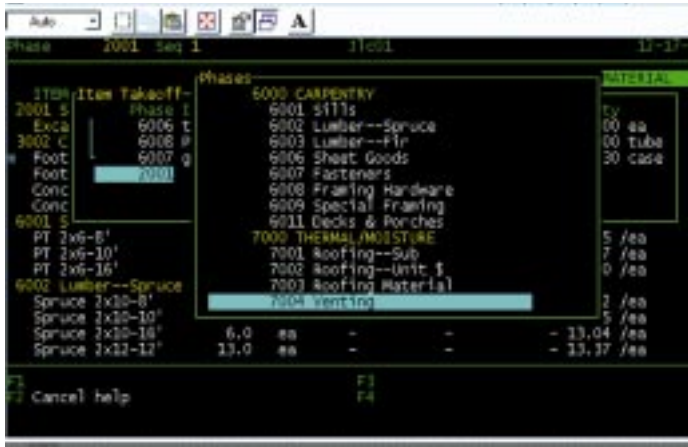
For estimating, Hamman uses Timberline, Percision Estimating which allows him to create infinitely detailed assemblies. He uses the same CSI-based phase numbers from Timberline in Paragon, so he can manually compare job costs to estimated costs.

around a common activity, such as replacing joists — based upon the way I worked and the types of jobs my company did. I set up phase numbers in Paragon to match the Timberline phases, although, being an estimating program, Timberline phases contain a large number of takeoff items that don't show up in Paragon.

Even though I had paper records for previous years, it took me a year to fully develop the system. Along the way, I feel I earned a degree in business management and finance. As needed, I update my pricing using actual costs. I've gone through four computer upgrades and today I get the reports I need, my estimates are accurate within 4% or better, and my workers comp costs are under control.

I believe a common mistake builders and remodelers make is not to take the time to fully understand the financial workings of their business and to know the actual costs associated with a project. I would be uncomfortable using a unit-cost estimating program based upon costs I couldn't verify for myself.

Software Manufacturers

ACT! for Windows
Symantec
10201 Torre Ave.
Cupertino, CA 95014
800/441-7234
www.symantec.com

Chief Architect
Advanced Relational Technology
301 N. Third St.
Coeur d'Alene, ID 83814
800/482-4433
www.chiefarchitect.com

GlobalFax
Global Village Communication
1144 E. Arques Ave.
Sunnyvale, CA 94086
408/523-1000
www.globalvillage.com

HomeTech Advantage
HomeTech Information Systems
5161 River Rd.
Bethesda, MD 20816
800/638-8292
www.hometechonline.com

MS Project, MS Word, MS Works
Microsoft
One Microsoft Way
Redmond, WA 98052
800/426-9400
www.microsoft.com

Paragon
P&L Associates
4642 E. Chapman Ave., Suite 349
Orange, CA 92869
800/843-3997
email: plassoc@worldnet.att.net

Quattro Pro, Word Perfect
Corel Corp.
1600 Carling Avenue
Ottawa, Ontario K1Z 8R7
800/772-6735
www.corel.com

QuickBooks Pro, Quicken
Intuit
155 Linfield Dr.
Menlo Park, CA 94119
800/446-8848
www.intuit.com

The Master Builder
Omware
825 Gravenstein Ave. North
Suite 5
North Sebastopol, CA 95472
707/823-7783
www.themasterbuilder.com

Timberline Precision Collection Estimating Software
Timberline Software
9600 Southwest Nimbus Ave.
Beaverton, OR 97008
800/628-6583
www.timberline.com

WinEst Pro Plus
WinEstimator
8209 S. 222nd Ave., Suite B
Kent, WA 98032
800/950-2374
www.winest.com