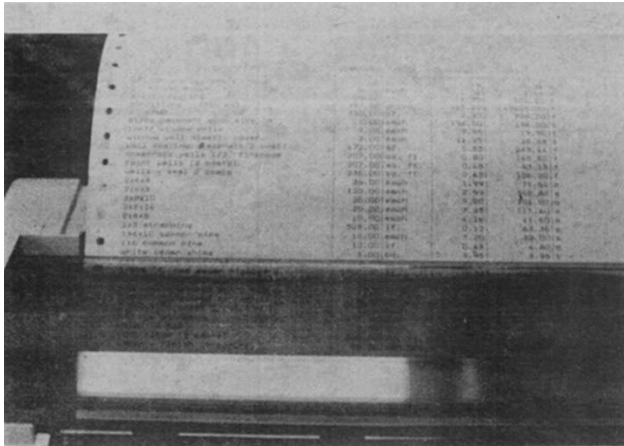




Picking the Right SOFTWARE

by Sal Alfano & Geoffrey Lamin

The choices are bewildering, but software is what makes your computer a trusted workhorse (or a ne'er-do-well nag). So shop carefully.



Esti-Maker's takeoff report assigns a specific code to each item—for example, "t" for taxable. The program can then sort by these classifications.

A computer salesman we know summed up the ideal marketing strategy for selling computers to builders. "Paint them green," he said, and print the "John Deere" logo on the side." The point is well taken. Computers are unfamiliar and unproven equipment to builders. Their biggest question remains: What exactly can computers do to help my company? The answers depend largely on which software you buy. Without software, computers do nothing at all.

What It Does

Computers do three things extremely well.

First, they can make calculations with lightning speed, and never make mistakes. These can be math calculations like on your calculator or logical calculations, such as: if the total number of square feet of plywood does not divide evenly by 32, order another full sheet.

Second, they can sort things. For example, lists can be put into alphabetical order, or items on an estimate—such as different sizes of lumber—can be grouped by type. A list of 500 items might take you 20 minutes to sort by hand. A computer can do it in a second without missing any.

Third, they can store and retrieve information. Unlike flesh-and-blood office clerks, computers always remember where the information is, and can find it in a big hurry. At the touch of a button, they can perform the

electronic equivalent of cleaning out your filing cabinet, revising an estimate, or erasing a clause in a contract.

In short, much of what a computer does fits the construction industry like a glove, but how conveniently it performs these functions depends on the software.

Can It Save You Money?

Whether a computer can save you money depends a lot on how you run your business now—and what kinds of data you track. If you do something well now, a computer may help you do it better and faster, but it won't turn you into a good estimator or bookkeeper, if you're not already.

Once you're up to speed, a computer can save you time in bookkeeping, billing, job-cost tracking, and other office functions. These will go faster with fewer errors. The improved bookkeeping can save you time and money with your accountant. If you run the machine yourself, it can spare you the need to hire a bookkeeper. On the other hand, you may end up hiring a computer jockey—or being one.

Second, a computer can enable you to track job costs more effectively. This can help you identify problem areas on a job in progress—often in time to make corrections in the field. It can also help you bid more accurately next time.

With a computer you may find that you get all those government reports in on time and avoid the penalties for late

filing. Finally, a computer can help you generate new work because you can get out more estimates—and more professional looking estimates. A detailed computer printout on your letterhead is an excellent sales tool.

Learning Time

Don't be mislead, though. The computer may take thousandths of a second to do calculations, but it will take you months to learn how to use it effectively. In fact, the value of your time spent learning how to use your system will probably exceed the cost of the system.

Despite all the talk about "user-friendly," the only instruction you'll understand in the manual right away is how to plug in the machine. But don't get too discouraged. Just as you once learned how to change brushes in an electric drill, you'll learn how to enter and alter data, back up files, and print out reports.

Mostly it's the little things that will take time. You'll need to learn lots of little things—with absolute precision—because computers are astoundingly literal. For example, one program we reviewed used the command "L" to get a list of subcontractors, but "L." to get other lists. All software has its quirks, and you'll need to learn them, sometimes painfully.

Try Before You Buy

The fundamental problem in purchasing software is that you really don't know what you've got until you take it home, crack open the manual, and fire up the program. You're shelling out \$1000 or more for what amounts to a book (the manual), a piece of mylar (the disk) and the software vendor's reputation. So find out what you can before you shell out the bucks.

If you're lucky enough to have a friend with software you are considering, try to arrange some keyboard time on his machine. Some companies offer low-cost "demo" software that you can buy to get a taste of the actual program. These can be helpful. At a minimum, arrange with the vendor to see a demonstration at a computer store or at the office of a user of the software.

Picking a Vendor

No matter how well prepared you are, you will still need help with the software once you get it home. For this reason, you should find out what kind of support you're likely to get from the software publisher you are considering. Ask for a list of other users, and follow up on it. Figure out whether the company is likely to be around next year and the year after. How many installations do they currently support?

What form will their support take? Some companies include telephone help in the purchase price; others charge a fee for it. Some offer training. Some companies go further, offering newsletters, electronic bulletin boards, and user groups. Also, because no software is perfect, most programs are improved or "upgraded" regularly. Find out how frequent and how expensive the upgrades are.

Finally, if you are buying through an authorized local dealer, ask the same kinds of questions. It can be valuable to

Despite all the talk about user-friendly, the only instruction you'll understand in the manual right away is how to plug in the machine.

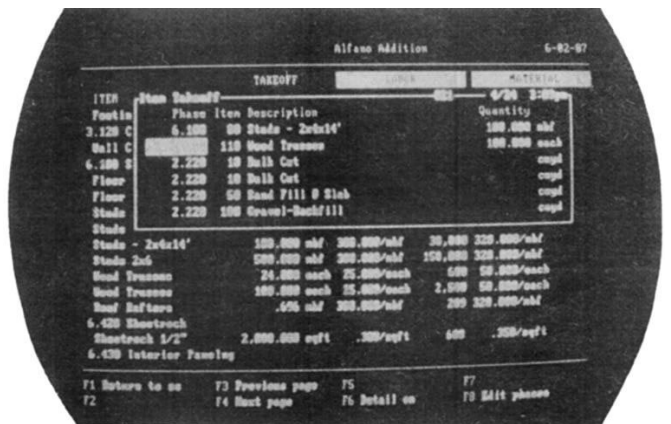
have someone close at hand—but only if they have expertise in your particular hardware and software.

The Reviews

Our reviews in this issue just scratch the surface. Ten programs are represented, but the NAHB Software Catalog for Home builders lists at least 300. And new stuff appears on the market every day.

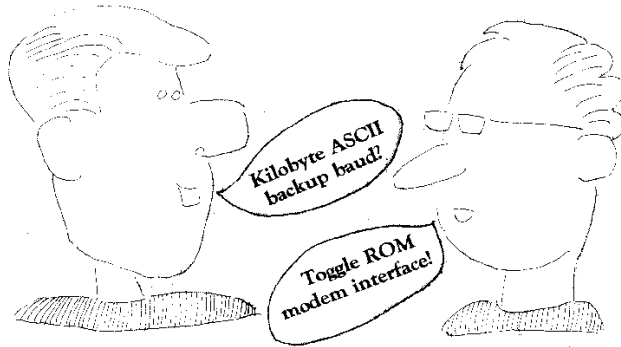
To limit our scope, we only sampled software that runs on IBM-compatibles, and we chose mostly software that cost under \$1000. We went with IBM because they have set the dominant hardware standards for the industry, and most business software is written for the IBM.

A few programs just wouldn't do what they were supposed to, so we thought it best not to waste space on them. The ten we ended up with are weighted heavily toward estimating (six programs), with two accounting packages and two schedulers. We chose mostly estimators (and the job-cost programs that sometimes accompany them) because we feel they are a good place to start computerizing. They tend to offer the most bang for your software buck. Also, we feel your accounting system should be built around your estimating and job-cost system. The accounting packages we reviewed are the only ones we found for under



Timberline's Precision Estimating makes good use of windows—here the window displays "deeper" levels of the pricelist database.

Software Glossary



"What language are they speaking?" you might ask when you first enter a computer store or pick up a computer mag. Don't be intimidated. The salesperson probably doesn't know what a soffit is, let alone a cricket. And armed with this software glossary, you'll be interfacing famously with the heaviest hackers in no time. (see also Hardware Glossary)

ASCII. The standard computer code on which almost all software languages are based. It stands for "American Standard Code for Information Interchange" and is pronounced "Askey."

Application. The task your computer is performing, such as word processing, estimating, accounting, etc.

Backup. A copy of the data you have put into your computer. If you don't make a backup, and your disk crashes or power dies, you'll be sorry.

BASIC. A standard language for writing software programs. For now, leave programming to the programmers.

Baud. The speed (bits per second) at which your computer will transmit data. When sending information to another computer over modem, make sure they are set at the same baud rate.

Bit. The smallest unit of information a computer can recognize: and it really is small. If you type the letter "a" on your keyboard, you'll use up eight bits.

Boot. Turning your computer on and loading the operating system (see DOS). A "cold boot" is when you turn your computer off and on again because it got confused and went berserk.

Bug. A glitch or error built into your software that can cause minor inconvenience or total havoc. To solve the problem is to "debug."

Byte. The amount of information represented by a single character on your keyboard: eight bits. A kilobyte (Kbyte) is 1,024 bytes, and a megabyte (Mbyte) is a 1,048,576 of them.

Character. Any letter, number, punctuation mark, or anything else that you enter into your computer with a single keystroke. "Alphanumeric" characters are all the letters, numbers, and special symbols.

Cursor. A little blinking light or box on your screen that shows where you are in your computer program or file.

Data. Any information you type or feed into your computer.

Default. Something the computer assumes unless you instruct it otherwise. For example, an estimating program might assume felt paper unless you tell it you use Tyvek.

Directory. A listing of the files you've got on a computer disk.

Disk. A platter covered with magnetic material that stores your software and your data. A "hard disk" is built into a computer and holds a lot of information. "Floppy" diskettes are small, removable, and hold a lot less data.

Documentation. The instructions in a manual or on a computer disk that tell you how to use a program. Good documentation is worth its weight in gold.

DOS. Disk Operating System. The essential software your computer needs to operate and use a disk drive. The most common systems are MS/DOS and PC/DOS, both of which work with IBM-compatible computers. DOS rhymes with "floss."

File. A collection of related data that you store in one place. If you didn't have a computer, you'd put it in one file folder. You have to give it a name so you can find it later.

Function keys. Ten special keys, labeled F-1 through F-10, that do whatever your software wants them to do.

GIGO. Garbage in, garbage out. This is the closest thing to a Golden Rule for computer operators.

Menu. A list of choices on your screen to select from. Menu-driven programs are generally considered easier to use than command-driven programs, but can be slower.

Program. See software.

RAM. Random-access memory. Memory built into your computer that only works while the computer is turned on. Long-term memory is on disks, tape, or other devices.

ROM. Read-only memory. Permanent data built into the computer that tells it how to run monitor, keyboard, disk drives, and other functions.

Software. A string of instructions that tell the computer how to do something useful, such as estimating. Also called a "program."

Toggle. To turn a function on and off (or back and forth) with the flick of a key.

User-friendly. All-purpose term for computer software or hardware that's easy to use by people who aren't computer buffs.

\$1,000 that we had any luck with.

Types of Software

Three types of software are represented: stand-alone, modular, and integrated. Stand-alone means that the program is used by itself. Most of the estimators fit this description. A modular program is part of a larger family of software, and may work by itself or in conjunction with one or more other modules. This overlaps with the last class, integrated software, where each module is specifically designed to interact with several other modules, which comprise a total system. Most accounting software is either modular or integrated.

Applications

The three applications we looked at are estimating, scheduling, and accounting.

Estimators, as you will see, come in a variety of flavors. Many include a database (an electronic file cabinet) where materials and prices are stored and retrieved. They allow you to modify the database, and to manipulate overhead and profit, sales tax, and other variables. Finally, they produce a range of reports, from a completed proposal to a fully detailed takeoff list or a bill of materials.

Job-cost is an extension of estimating, and sometimes the two programs interact. Whether the cost information is entered manually or automatically, a job-cost program compares your estimate to the actual job costs to tell you how well a job is going. In the most comprehensive (and expensive) programs, this is all part of an integrated accounting package.

Scheduling ties in here, too. Using information obtained from your estimate, a scheduling program will help you keep track of vendors and subcontractors, letting you know when a critical activity has fallen behind schedule and will hold up the rest of the work. Also it can help you figure out how much work you can undertake during a given period of time.

An integrated accounting package has modules to handle several distinct accounting functions, including accounts-payable, accounts-receivable, and inventory. The general-ledger income and expenses. For all of these, the program generates reports of varying complexity and detail to screen or as a printout.

Learning the Hard Way

It all sounds wonderful, doesn't it? And it is, except that some software performs better than others. And with very few exceptions, no piece of software will do everything you'd like it to. To bridge the gap between manufacturers' literature and the realities of your office, we concentrated on evaluating what the programs are actually like to use—starting with the manuals and self-teaching "tutorials" that are supposed to get you started on a new software package.

We took a good look at the instructions (documentation), which include the manual and sometimes a step-by-step tutorial on the disk. We looked for sound organization, clear explanation, and helpful instruction. We did the same with the installation procedures (how to get started), watching for things that might trip up a novice, like needing mastery of DOS commands. Once the program was fully operational, we put it through its paces, performing nearly every function available.

Finally we tried to step back and look

at the program as a whole, judging whether it did what it claimed to do. Absolute conclusions are difficult to draw, considering that everybody's needs are different and that many software programs are constantly being upgraded. But some general findings emerged.

First and foremost, it became obvious that cost is a poor measure of the value of a program. Software pricing has a life of its own and does not always reflect the program's value to a particular user. It's important to keep in mind that the program is worth the money if it does what you want it to, and worth little if it doesn't.

How programs displayed data on the screen turned out to be more significant than we'd expected. There was great variety. Clean and understandable displays made a big difference in how easy the program was to learn and use. Look for this when you go shopping.

The number of keystrokes required to complete a particular operation is another factor that's critical to a program's convenience. This includes the way you enter and edit (alter) data as

Software pricing has a life of its own and does not always reflect the program's value to a particular user.

well as how the program reacts when you hit the wrong key. In general, the fewer keystrokes, the better, but sometimes a very logical sequence of keystrokes can make up of its number. A related issue is how many times you need to enter the same data into the system. One thing a computer can do well is distribute data—such as price changes—to several places at once, from which it can be retrieved later. The best programs require data to be entered only once—something you'll greatly appreciate.

Finally, we found that, in general, programs designed specifically for the construction industry are more suitable for builders than generic software.

We spent as much time with each program as we felt necessary. Some, to their credit, we felt very comfortable with in two or three hours; others, we still seemed a bit fuzzy after twenty. It's impossible to cover every feature, of course, but we dug pretty deeply into each program. Our best advice is that you make an effort to do the same before you decide what to buy.

We've done some of this work for you, and hope these reviews give you something of a head start. ■

Sal Alfano is a general contractor and computer consultant in East Calais, Vt., who still estimates on Multiplan. Geoffrey Lamin is a management and computer consultant in White River Junction, Vt. To bring you these reviews, both did yeomans work wading through mountains of floppy disks and murky manuals.



CONSTRUCTION SOFTWARE REVIEWS

by Sal Alfano & Geoffrey Lamdin

ESTIMATORS

EstiMate
RMS Technology, Inc.
9680 S. Gribble Road
Canby, OR 97013
(503) 266-7688



List Price: \$395
Requires: IBM compatibles, DOS 2.1 or higher, 128K RAM, two floppy drives. Hard drive recommended.
"Especially useful for subtrades. Take-off items stored as assemblies, which can be recalled for future take-offs. Uses handy two-character search to recall items from database."

EstiMate is a moderately priced, menu driven, general purpose estimating program that lends itself to the unit-price estimating of small, well-defined projects. It is sold as two disks, one of which is a tutorial that also works as an abbreviated version of the full program. This gives the purchaser a chance to use the software for 30 days, during which it can be returned for a full refund, as long as the second disk (the full program) has not been used. An optional inventory module is also available. I found the tutorial disk more helpful than the documentation, which isn't as well organized as it could be, but does provide an index and good installation instructions.

Everything that will eventually be used to make an estimate must first be stored in the "Item File." You create this item-by-item, using a standard form on the screen, which asks for 14 pieces of information on each item. Three of these are essential: the item description (up to 14 letters or numbers, such as "2x4"); the unit of measurement (ea, lf, lbs, sf); and, of course, the selling price. All others are optional but useful. Part number and weight are helpful if you use the inventory module. You can also specify a primary and secondary vendor with the cost of the item at each (cost is what you pay for it as opposed to *price*, which is what you charge your customers). Finally, if the item is stored as a unit-cost installed, a place is provided for the time (in hours) and labor classification (rate per hour) associated with the item. The current date is also stored with each item, which you'll find when you go to update the prices later on.

To call up an item out of the database when doing an estimate all you need to remember are any two consecutive characters (or more) from the item description. For example, to call up an item stored as "CDX plywd," you could type "CD" or "ply," or even "yw." A window then opens at the bottom of the screen and displays a consecutively numbered list of every item that con-

tains those two or more characters together. To select the correct item, you choose its number, the item description is entered in the proper column on the estimate and the cursor moves into position to accept a quantity. All very convenient!

Two features make this routine work even faster. First, you can speed up the search process by typing two two-character codes. For example, if you're looking for pressure treated 2x4s, you could type "2x,PT" and narrow the list to pressure-treated 2x stock. (This assumes that "PT" is the way you designated pressure-treated wood in the item file.) Typing "2x4,PT" would further pare the list to pressure treated 2x4s. How well this works depends, of course, on how you set up the item list. A well thought out list will pay off later with increased speed in recalling items.

Another shortcut is a clever, built-in calculator that can really make quantity calculations a breeze. After you've selected an item and the cursor is in the quantity column, you can enter a regular number, or you can perform calculations right there. For example, if you enter "12 + 23" "35" will appear as the quantity. You can add, subtract, divide, and multiply. Better still, you can combine arithmetic operators to get standard conversions. For example, entering "40x60/32" will give you sheets of plywood from square-foot dimensions. And "320 16" will yield 241 studs for 320 lf of wall spaced 16 inches on center.

To make things even more efficient, all estimates are saved as "assemblies" and are stored in an assembly file, from which you can recall them to use in another estimate. Or you can create sub-assemblies, which are useful for unit pricing components such as wall systems. The search-and-select process for assemblies is the same as for items. This makes the program useful for unit pricing, especially since labor rates can be included as a standard part of each item.

Despite these features, there are a couple of troubling things about the overall design that make this program less useful to custom builders. For one thing, there is no way to enter an odd or custom item directly onto the estimate screen. If it's not in the item file it doesn't exist.

There is also some confusion about labor prices. The only way to get a pure labor price, which will appear in the labor subtotal in the reports, is to create a labor classification as an item on the standard form, and leave out the section where vendors and material prices are entered. This is not particularly difficult to do, but is not readily apparent from either the tutorial or the documentation.

Another shortcoming is the difficulty of editing of the price list. In early versions, changing prices and costs could only be done item-by-item. The most recent version allows you to update a group of items simultaneously by either a dollar amount or a percentage. Unfortunately, you must first create another list of items, using the search-and-select method. The only advantage over the early version is that once this list is created, it can be saved and used again to change prices.

Reports, on the other hand, are versatile, even though they can be directed

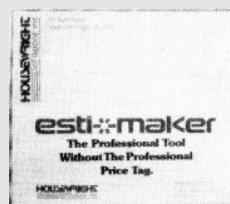
only to the printer and cannot be previewed on the screen. On copies for customers, you can suppress certain information (such as overhead and profit numbers) which appears as a matter of course on office reports. Also customized text can be stored and retrieved so that it will appear on proposals. This feature allows you to add payment schedules, disclaimers, or any of the text to a particular estimate. Estimates can be printed at several levels of detail, including a "compressed" form. This extremely useful feature combines identical items producing a very nice bill of materials.

Finally, the job-cost feature gives you a quick visual indication of differences between estimated and actual costs. A full screen displays estimated quantities alongside actual quantities, which are entered by hand. If they match, the screen displays the actual quantity dimmed to half intensity, but if they fail to match, the number in the actual column is displayed at full brightness. This display makes it easy to quickly scan the list and pick out where actual costs deviated from estimated costs.

Overall, *EstiMate* is a good, easy-to-learn unit-price estimator. It seems best suited to subtrade specialties, retail operations, and other businesses that have a structured product line without a lot of unique items or custom work.

RMS Technology is small enough to be truly responsive to user comments, and expects to offer up to three upgrades annually at a very low cost. Technical support is also very good. I wouldn't be surprised if some of the complaints I've mentioned here are addressed in the very near future.

Esti-Maker
Housewright Software, Inc.
69 Swift Street
So, Burlington, VT 05401
(802) 658-7409



List Price: \$99 plus \$400 per database
Requires: IBM compatibles, DOS 2.1 or higher, 256K RAM, two floppy drives.
"Excellent general estimator. Inexpensive. Clever split screen displays takeoff and database together. Very easy to learn and use."

The versatile, stand-alone *Esti-Maker* uses a very clever split screen design to keep the estimate and the database in view at all times. Even without the database, an estimate can still be entered by hand, on the upper screen, by typing in the item description, quantity, price, and tax code. But you can speed your entry time significantly by switching to the lower screen and scrolling through the database.

The database is arranged in a hierarchy which unfolds with successive use of the function keys. For example, one

division of stored prices might be called "Framing Lumber." When you select this title, you see a list of sub-categories—2x6, 2x8, 2x10, 2x12—from which you can select yet another level of detail—2x6: 8-foot, 10-foot, 12-foot, 14-foot, 16-foot and so on. Items are highlighted on the screen as you move the cursor through the list. When you find the one you want, one touch of a function key will copy the item description, price and tax code to the top half of the screen. All you need to do is supply the quantity. This virtually eliminates having to memorize item

You can speed your entry time significantly by switching to the lower screen and scrolling through the database.

code names or numbers. However, the speed with which you can search through the categories of the database depends to a large degree on how you organize the database in the first place.

The scrolling function, itself, could be improved. Although the HOME key moves you instantly to the top of the database, scrolling down through it seems to take forever, particularly if all you need to retrieve is one quick item. Faster hardware could speed this up somewhat. This problem is also somewhat relieved by the ability to store as many databases as you need, each of which can hold up to 30,000 items. In this way separate databases could be created for different kinds of work or different divisions of work within a larger project. It's very easy to switch from one database to another with *Esti-Maker*.

Both the estimates and database are very easy to edit using full-screen display and full cursor movement. This means you can move around the screen at will and change information as if it were a word processor—this is the easiest type of editing. Also, the editing functions "lock out" other activities—minimizing errors. A predefined database, which I found useful as an example of how to structure a pricelist, can be purchased separately. But it's easy to build your own, and maintain it as prices change.

While I could not find any way to remove a database from within the program it's easy to do if you know DOS. Rearranging order of items within a database is a little more difficult. For example; if you want to move framing lumber from the end of the list to the beginning, you must either rewrite that portion of the database or delve into the mysteries of DOS—for example, the *Unload-Reload* commands. Regrettably, the documentation, which otherwise does a thorough job in remarkably little spaces (eight pages), provides little information about this procedure. A novice would have a tough time with it.

Reports are moderately flexible. You can include customized text at the top of each estimate, along with detailed sub-totals. Several line-item categories are

provided—taxable, non-taxable, labor, and formulas—all of which are broken out at the end of the report. I could not find a way to hide overhead and profit charges on the report, although in some cases it appears merely as a subtotal for "other non-taxables." This vague labeling might be hard to explain to a curious client. Fortunately, you can change the language by modifying the reports on a word processor. Also you can insert the estimate report or parts of it within another document such as a job proposal. In general, you can direct reports to the screen for review, to the printer, or to a disk.

There are a couple of missing features that would make *Esti-Maker* more useful. There is no on-screen calculator or built-in mathematical functions for entering quantities. And you still have to count out your bill of materials by hand from the estimate printout, since the program cannot go through and combine identical items such as all the 2x4s. Also, as far as I can see, individual database items are not dated according to the most current modification. Without keeping some independent record of what you changed and when, you have no way of knowing which prices are current and which are not.

As with most construction software, job costing is accomplished by reversing the estimating process. With *Esti-Maker*, the total cost of the job is entered at the top of the estimate screen with invoice costs entered by hand and marked with an "A" for "actual." The costs are then subtracted from the total and compared to a percent-complete figure. This gives a fairly accurate idea of how well actual costs are matching the estimate.

Overall, *Esti-Maker* can meet the estimating needs of many small to medium size construction companies for a very low up-front cost. It's worth the price even if the only thing you ever do with it is create and maintain a price list. Its short learning curve (I felt comfortable with it in less than two hours) and ease of use make it a good choice for the first-time computer user.

The Remodeling Estimator
National Computer Estimating
138 Iroquois Trail
Ona, WV 25545
(304) 736 4470



List Price: \$695

Requires: IBM compatibles, DOS 2.1 or higher, 256K RAM, two floppy drives. Hard disk recommended.

"Strictly for remodeling. Uses system of coded field notes for unit-price estimating. Excellent tutorial, good screen design, but small database."

The Remodeling Estimator takes a unique, even idiosyncratic approach to estimating. It is slanted strongly toward renovation and insurance estimating (for example, it offers a place for a claim number on the client information screen), but boils down to being a unit-price estimator. The software includes

an excellent tutorial disk which runs the program automatically, and is supported by adequate documentation. The manual has no index, so it's sometimes hard to find what you want, but it does have clear setup instructions.

The program makes a deliberate effort to accommodate the actual process of estimating a renovation. It assumes that the estimator must first visit the site and take measurements and notes about the kind of work required. Back in the office, these notes must somehow be translated into the materials and labor required to complete the job. This is where *The Remodeling Estimator* takes over.

The program makes a deliberate effort to accommodate the actual process of estimating a renovation.

To translate your field notes into something the computer will understand, you use a printed price list which NCE provides and calls a "List of Repairs." You have to use the printed list for two reasons: first, the program can't display the repair codes on the screen while doing an estimate; and second, because the codes (numbered 1-500) are almost impossible to memorize, even when subdivided by CSI divisions.

Using the printed price list, you make a second list by hand on which you classify tasks by code. While the program will accommodate any note-taking system, you might as well use the one provided since it is perfectly compatible with the program. This process is, of course, easier if you coordinate your price list descriptions with your field note system. For example, don't put "trim closet" in your database but write "case closet" in your field notes.

The program steps you through an estimate room-by-room (up to 30 rooms). After entering client information, the program asks for room dimensions. Certain measurement conventions are built into the program—for example, how to enter dimensions for a closet or offset—and these are thoroughly discussed in the documentation. Since the program automatically calculates quantities from the room dimensions you supply, you need to enter all of this information for a particular room before you begin entering codes.

This may seem a little unwieldy, but with a little practice, it's actually quite simple and doesn't take as much time as you'd expect. The estimate screen itself is very well designed. The top 80 percent of the screen displays the line items of the estimate. Just below that, in a box (window in computer jargon) is the work area, where you call up items and make calculations. And at the bottom is a highlighted bar that shows which function keys are operational and what they do.

In the work-area window you enter the work codes from your list. If you've typed in all the necessary room dimensions, then that work item will appear at the top of the screen with all of the columns (qty, description, unit of measurement, price) filled in. If more information is required, a built-in calculator in the work area automatically prompts you to enter them. For example, if you

enter work code #204 "1/2 drywall on ceiling," the program will prompt for length and width dimensions. Once entered, the calculations are done automatically and the information appears at the top as a line item. The prompt system is well organized and consistent.

There are several marvelous features built in to the estimating screen. First, you can easily enter the custom items onto the screen, complete with a full description (up to 40 characters), price, and unit of measurement. Also, you can

At any time, you can ask to see how a change will affect the overall price. You can decide to keep the new pricing or retain the original.

switch on or off the automatic pricing from the price list. In the non-automatic mode, you are prompted for prices each time you enter a work code. This is useful if you haven't updated your price list. Even in the automatic mode, you can change single prices if you want. The whole screen can be recalculated at any time. It's also possible to insert lines of text anywhere on the estimate. This is useful for making notes about the estimate as you go, all of which appear on printed reports. These blocks of text can be easily stored and retrieved for other estimates.

Another wonderful feature is the "what if" routine. At any time during the estimate, you can ask to see how a price change will affect the overall price. The change is made first in the work area, and you can decide to keep the new pricing or discard it and retain the original.

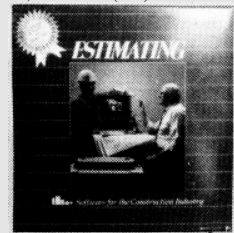
The number of reports you can generate with the *Remodeling Estimator* is limited and they cannot be modified. But you can print estimates at several levels of detail, and you can get a report of the estimate organized by CSI division. Most of these reports can be previewed on the screen before printing.

The Remodeling Estimator features full-screen editing, which means that you can move quickly throughout the database allowing you to rapidly update prices or add items. Each item is allowed 40 characters for the description, and the 19 conversion formulas provided seem adequate (which is good because they can't be changed or added to). A percentage-waste factor can be included along with six methods of rounding quantities so that you can calculate, for example, sheets of plywood from square-foot dimensions.

The Remodeling Estimator is a bit idiosyncratic. It does not provide an itemized list of materials from which you can place an order. (However, the next version reportedly will.) Nor does it have a job-cost function. And the limited size of the database pretty much rules out its use as a tool for custom work. Yet the program is very easy to learn and works well as a unit-price estimator. It seems especially well suited to insurance estimating, where quick, accurate estimates are often required.

CMS—Advanced & Basic Estimating

Contractor's Management Systems
11150 Sunset Hills Road, Suite 300
Reston, VA 22090 (703) 435-3172



List Price: Basic, \$495; Advanced, \$2995. Databases: Basic Builder, \$195; Remodeler, \$795; Advanced Builder, \$995; General Contractor, \$1495; Commercial Contractor, \$1995.

Requires: IBM compatible (80286 recommended), DOS 2.0 or higher, 512K RAM, hard drive and one floppy drive.

"Currently the most popular builders' software in use on micros. Powerful and detailed, yet complex and slow to learn."

Basic and Advanced Estimating from Contractor's Management Systems (CMS) are the most popular estimating programs for micro-computers out there. *CMS Estimating* has been one of only three or four products capable of performing fairly complex and powerful estimating functions without making you spring for a megabucks mini-computer. The program is widely used, both alone and as the estimating module for many major construction-accounting packages.

For all of its popularity, and power, however, we found *CMS Estimating* to be wanting in several areas. It took a long time to learn. We clocked over 25 hours on CMS and still did not feel comfortable with it. Also, it ran slowly even on our souped up "AT" compatible. The average time to change screens or windows was 12 seconds with some taking as long as 25 seconds. In general, we found the program to be bulky and unwieldy.

CMS's takeoff/bid format is a list of items with no prices, rather than a spreadsheet. In fact you cannot get any bid price information until you have run a bid report. In *CMS Estimating* bids are inextricably tied to the database. This causes several difficulties, some obvious and some less apparent.

For one thing, changing the price of an item, such as a skylight, is done at the database level whether done "on-the-fly" (mid-bid), or by editing the database. This means any change made in a price or item description in the current bid will be reflected in every bid in your system. You cannot have bid-associated changes.

Further, CMS does not allow for one-time items. Because it is a takeoff list, there is no way to type in a one-time item or change an item's price without changing the database.

The implications of this design go beyond daily use. Because bids are tied to the database, you cannot maintain bid histories. For example, if you pull up a two-months-old bid on a job that is nearing completion it will come in with any new prices you have edited into your database. It will not be the same bid you sent out!

The only way to keep historical records is to save reports to file, but we found this unsatisfactory. A call to customer service provided another, some-

NEB's Construction-Software Chart

	New England Builder Overall Rating	Best Application	Price (as reviewed)	GENERAL SPECS			EASE OF LEARNING			EASE OF USE					
				Set-Up ①	Copy Protection ②	Multi-User ③	Overall	Demo/Tutorial	Documentation	On-Screen Help	Overall	Screen Display	Cursor Movement	Use of Function Keys	Data Entry, Editing, Error Handling
EstiMate	G	Sub-trade, retail sales	\$395	G	no	no	F	yes	F	G	G	G	F	G	G
Esti-Maker	E	Small general contractor, or sub-trade	\$499 (incl. Database)	E	no	no	E	no	G	no	E	E	G	E	E
The Remodeling Estimator	G	Renovation	\$695	E	no	no	G	yes	G	E	G	E	G	E	G
CMS Advanced	F	High-end general contractor	\$4990 (\$690 for Basic version)	G	BB,R	yes	P	yes	F	F	F	P	G	E	G
Precision Estimator	E	Any estimating	\$990	E	BB,R	yes	E	yes	⑧	E	E	E	E	E	E
Walker's Practicalc	F	Retail sales, tract housing	\$995	G	BB	no	G	yes	F	n.a.	F	G	P	n.a.	F
Schedule Manager	E	General contractor scheduling	\$995	E	R	no	E	yes	E	E	E	E	E	E	E
Schedule-Pro	G	General contractor scheduling	\$39.95	E	no	no	G	yes	G	G	G	G	G	G	G
Accounting for Micros	F	General accounting	\$125 (per module)	F	no	no	F	no	F	F	F	G	F	G	P
Dome Simplified Bookkeeping	E	Small company, bookkeeping single checking acct.	39.95 (annual)	E	⑦	no	E	yes	E	no	E	E	E	E	E

If you've read through all ten software reviews, you're probably dizzy by now trying to remember what features and capabilities go with which programs. Referring back to this chart from time to time should help make the job a little easier.

REPORTS						DATABASE								SPECIAL FEATURES				
Overall	Print to Screen	Print to Printer	Flexibility	Bill of Materials	Overhead Distributor ^④	Item Capacity	Line Items Per Estimate	Item Detail ^⑤	One-Time Items	Assemblies	Price Editing	Use of Multiple Data Bases	Data Storage ^⑥	Building a Data Base	Calculator	Formulas	Prices on Estimate Screen	Job Cost
F	no	yes	F	yes	no	5,200	unl.	G	no	yes	F	F	dep.	F	yes	yes	yes	yes
G	yes	yes	F	no	no	30,000	unl.	G	yes	no	E	E	dep.	E	no	no	yes	yes
G	yes	yes	G	no	no	500	2025	G	yes	no	G	P	dep.	G	yes	19 built in	yes	no
G	yes	yes	E	no	no	30,000	2,000	E	no	yes	F	F	dep.	F	yes	39 built in	no	yes
E	yes	yes	G	yes	yes	unl.	unl.	E	yes	no	E	G	indep.	E	yes	unl.	yes	yes
F	no	yes	F	no	no	4,000	n.a.	F	yes	n.a.	F	n.a.	dep.	F	no	hidden	no	no
E	yes	yes	G	—	—													
G	yes	yes	G	—	—													
F	yes	yes	F	—	—													
G	yes	yes	G	—	—													

Software Chart Notes

Abbreviations: E — excellent G — good F — fair P — poor
Footnotes: unl. — unlimited n.a. — not applicable

- Setup: How easy is it to prepare to run on your computer system, and to supply initial data?
- Copy protection: How does the program prevent you from making copies of the software?
 BB—a "black box" is installed at the parallel port.
 R—a registration number is assigned by the software manufacturer.
- Multi-user: Can the program run simultaneously on two or more computer terminals linked together?
- Overhead distribution: can the program spread or "hide" indirect costs (overhead, profit, etc.) among direct estimate costs (labor and materials)?
- Item detail: To what degree can database items be assigned add-ons such as cost classifications and overhead?
- Data Storage: If data are stored and retrieved with a particular estimate, the data storage is independent (indep.). If data are always stored and retrieved from the database, it is dependent (dep.).
 For example, with dependent data storage, changes made to the database affect every other job being worked on. Dependent databases do not let you identify a price as belonging to a specific estimate.
- To boot up the program, you must always use the program disk.
- Documentation incomplete when program was reviewed.

what better option. They suggested that we use DOS to copy the bid file and the current cost table to another file, or archive location. This will keep the bid and associated prices but you won't be able to bring it back into the program for manipulation without it again picking up the current prices.

We reviewed CMS's *Advanced Estimating* with their *Commercial General Contractor Database* (3,500 items and 250 assemblies included). These added up to a hefty \$4,990 (\$2,995 plus \$1,995). There are four databases available for the *Advanced* version and a fifth for the *Basic* version. Industrious users could build their own, though we recommend, at the minimum, transferring the "Sample Database" into your fully operating program.

The principal differences between the *Basic* and *Advanced* versions are power and scale. The *Basic* version is a watered-down *Advanced* version. It has a limit of sixteen divisions in its total database (vs. thirty), a maximum of 16,000 items (vs. 30,000), and only 1,000 takeoffs per bid (vs. 2,000).

The *Basic* version does not use formulas or assemblies. (An assembly is a group of up to twenty related items that are used together on a regular basis such as the components of an interior wall.) Formulas in the *Advanced* version are limited to 39, and they are not alterable.

The *Basic* version also does not allow for location assignments or cost adjustments, and has only nine cost types (labor, materials, etc., for tax and overhead) while the advanced has *twenty-five*. Report options are also more limited.

Both versions allow twelve mark-up categories and have a built-in calculator. CMS is available in a multi-user version and can be coupled with specialized take-off devices such as a digitizer.

The program will run a *Basic* and *Advanced* sample out-of-the-box. These highly abbreviated versions of the programs are designed to give you a feeling for which level you want to pay and register for. We didn't find the samples and associated tutorial lessons gave us enough information, however.

An intermediate level of computer experience—familiarity with DOS in particular—is necessary to make full use of several of the program's features, such as file copying, back-ups, path specifications and multiple databases. Setup procedures were easy and well documented, but also require a good knowledge of computers. Unless you have this knowledge, the program should be installed by your local vendor.

As a how-to guide or quick reference, we found the documentation only fair and a bit heavy on estimators' jargon. And because of the program's depth and power, you'll be checking it regularly. Help screens were much better and operated at menu and window levels.

Fortunately, CMS's customer support line is available from 9 to 5 (Eastern time) and the staff was knowledgeable and helpful. CMS also offers two-day training workshops for an additional \$395 at their site. If you are considering purchasing CMS find out about your local vendor's knowledge and support.

Once you are up and running, type in "EST" and CMS's Main Menu will come up in the upper left of your screen. CMS is menu-based and relies exclusively on a series of layered or overlapping windows. Command lines are at the top and bottom. At one point there were seven windows in as many

colors—a bewildering array.

In general, we found CMS's screens to be visually crowded and slow. While the program took its time to load and unload different windows, and to move around between menus, we spent our time drumming our fingers. This was particularly irksome when we wanted to quickly reference something on a list or flip back a window or two to check an entry.

The Main Menu lists four sub-menu options: database, bids, reports and utilities. Set-up procedures use the utilities menu to create a new database or to expand and existing one. A word of caution here: creating a new database will delete an existing one unless you specify a new path as well. Expanding an existing database will alter its configuration permanently.

The database menu is used to add, edit, or delete specific database items. These activities can be done mid-bid, or "on-the-fly," a valuable feature.

CMS is consistent in the way it assigns functions to the ten function keys. F-9 always provides increased detail, F-7 always pops up a list, F-1 always brings help, F-2 pops up a window listing all the function key activities. (You can also zip this out on your printer as a handy reference.)

Assemblies can be edited or built through the database menu. Also, they can be modified "on-the-fly," either permanently or temporarily for a particular bid. There is room for 250 assemblies, which can be customized and saved.

Assemblies can consist of up to twenty items that are taken off together. They may be of the "checklist" variety—for example, an assembly of job start-up items including a job sign, outhouse, fencing, bonds, and insurance. Or they may be of the "power" variety—items using the same takeoff unit and quantity, such as concrete, rebar, mesh, gravel, and sand for a slab on grade.

In the former, you would enter the quantity of each item separately. The assembly acts as a checklist against leaving crucial items out. In the latter, the takeoff unit may be square feet. Entering 330 sq.ft. in the takeoff field will automatically transfer this number to each item. The conversion formula for the item will automatically calculate the proper order quantity, unit, and costs.

CMS includes 15 built-in database reports with room for twenty on file. Customizing the reports takes some experimenting but is one of the finest features of the program. Report changes can be temporary, or saved for repeat use. They can be sent to your printer, the screen, or database.

Bid takeoffs are done through the "bids" selection on the main menu. A bids-listing window allows you to select a bid from file or to start a new one. The bid-utilities window allows you to copy a completed bid to a new bid, to append a bid with takeoffs from another bid, and to compress a bid to remove blank and deleted takeoff lines.

CMS also has full assembly capability. An "assembly-takeoff" window gives you information about an assembly's components, a place to enter the takeoff quantity and assign a location. You can add or delete items from the assembly for the current bid without affecting the database and other bids. However, the program will not remember your changes once you have taken off that assembly.

Takeoffs are done by entering the quantity and location in the appropriate

space and entering or pushing the down arrow. Formulas and the calculator are available when entering quantities.

Unfortunately, CMS does not provide a marker for completed items. This means that if you forget something, or want to check an entry on a prior page, you must leave the takeoff checklist window, look at the takeoffs listing, go back to the 'takeoff checklist, find your place, and start up again.

Takeoffs are limited to 2,000 per bid. While this seems like a lot, it wouldn't take long for a large residential or moderate commercial project to use up the available slots.

On the average, 18 steps are needed to takeoff one assembly and one item before you know an estimate's bottom line. The path can become tedious if items or assemblies need to be edited, formulas applied, or conversions calculated.

Bid reports work much in the same way as database reports. Twenty standard configurations are provided and are fully customizable. It is not until you print out a report that you see any costs or prices. Also, mark-ups are not applied until you print a report, which we didn't like.

Estimating is a big, powerful program that can handle a variety of estimators' needs. This power, however, is not wielded in a graceful manner. The program is difficult to learn, complicated to use, and runs slowly. Many users hail its power and flexibility, but we found CMS *Estimating* to a bit of a dinosaur.

Precision Estimating
Timberline Software
9405 S.W. Gemini
Beavertown, OR 97005
(503) 626-6775



List Price: \$840 plus \$150 for starter kit
Requires: IBM compatible DOS 2.1 or higher, 512K RAM, hard disk. Color monitor recommended. *"Flexible and powerful. This elegantly written program will set a new standard for estimators. Our top choice for all estimating applications."*

Precision Estimating (PE) is a breakthrough in micro-computer estimating. The program is powerful, intuitive, and logical, reflecting Timberline Software's extensive experience in the construction business. We reviewed a pre-release version of the program. The full program with documentation should be in the stores by the time you read this.

PE sells for \$840 including a database of close to 1,100 items. If you are not currently using any of Timberline's other software you will also need to buy their starter kit. This costs \$150 and includes a parallel-port black-box security device, registration codes, and system setup disks. An upgraded version called PE+ will reportedly be available this fall, at a cost of \$2,490 (plus \$150).

Both versions will run in several operating environments including IBM-

compatible, Xenix and Unix. There will also be an Altos version, as well as multi-user configurations. Both versions of PE will export directly to Timberline's Bid Analysis (\$990) and Job Cost module (\$3160) of their Medalion Accounting. Timberline is also working with the CAD company Autodesk to make a direct link between PE and AutoCAD.

The program requires 512K of RAM and a hard disk as every program function immediately writes and reads to disk. Despite this, it is the fastest estimator we tested. We ran it on a souped-up AT-compatible (an Epson Equity III).

While you can use either a monochrome or color monitor, we strongly recommend color. This is one of the few programs we've used in which color is an enhancement rather than an embellishment.

PE comes with a database of approximately 1,100 items and 25 built-in formulas. The database is broken into sixteen group phases coinciding with CSI standards. For all practical purposes there are no limits to the size of

With PE, you can write a program using logical functions such as: "If the wall height is eight feet or less, then use 2x4s, but if the wall height is over eight feet, use 2x6s."

your database other than computer memory. PE also puts no limits on the number of takeoffs per bid or the number of bids in your system. Only an introductory knowledge of DOS is necessary to use PE.

PE's formulas use mathematical and logical conventions. For example, you can create a simple formula for converting linear feet of an exterior wall to a square-foot order for Thermax. Or, you can write a program using logical functions such as: "If the wall height is eight feet or less then use 2x4s, but if the wall height is over eight feet use 2x6s." This feature enables you to combine different kinds of variables in one formula. It falls short, however, of full assembly capability, which the upgraded version, PE+, will have.

Installing and setting up PE is fairly straightforward. We had a representative from Timberline do the installation—including writing a simplified batch file and hooking up the black-box security device that goes between the parallel port and printer (to foil would-be software thieves). The company rep also gave us a brief tutorial, since the documentation was not yet completed. The actual program will come with a step-by-step on-screen tutorial.

Incomplete version notwithstanding, we think PE is a knock-out! It is easy to learn—we spent maybe six hours combined and feel we have fully mastered the program. The crux of PE's power and versatility is in its logical and intuitive design. It is based on a spreadsheet that has been adapted for construction

estimating and takeoffs. It looks like a full-fledged spreadsheet, but it behaves in a way that is comfortable for estimating.

The spreadsheet is arranged simply. Group phases, phases, and items are on the left side, Takeoff quantity and unit; labor unit price and amount; material unit price and amount; subcontractor price, amount and name; equipment unit price and amount; and total unit price and amount are arranged across the top. There is an extra column available for "other" unit price and amount.

Through a column-selection screen you can choose which columns you want displayed and how many characters to allot each field (within defined ranges). PE can even automatically reset the abbreviation used to title a spreadsheet column based on the amount of space available—a seemingly small feature but the type that can make using a program a joy.

The default settings and layout can be changed for each individual bid, without changing any other bid. This points to PE's other major coup—estimates are kept distinctly separate from the

The bid you made two months ago can be pulled up with the original prices even if you have made changes in your database.

database. Each estimate is associated with its own unique setup, takeoffs, and pricebook. This means PE estimates can be saved as a historical record. The bid on the job you made two months ago that is nearing completion can be pulled up with the original prices even if you have made price or item-description changes in your database. Every bid can be customized. Item details such as price can be adjusted for the particular conditions of a particular job. For example, the labor for installing red-cedar clapboard on a job can be \$5.00 more per hour because the crew will be hanging from ropes siding a treehouse.

Add-ons (markups, overhead, taxes, bonds) can be adjusted job-to-job, too. Add-ons can also be allocated to all or select items allowing you to present a bid that effectively hides your profit and overhead.

PE allows you to opt to update an old bid with current prices. Further, every category in the database can be edited, built upon or expanded from either the database-editing menu or "on-the-fly" while mid-bid. The combination means one-time items are a snap. Just type them into the spreadsheet. You don't have to add oddities to the database.

The spreadsheet design means that you see your costs and amounts immediately. The bottom line is a flick of the finger away (function key F-4). A spreadsheet also allows you to play "what if" games. For example, if you decide to adjust the labor amount on a particular item the program will recalculate the price per unit and the bottom line automatically. With a color monitor, entries made directly to the spreadsheet are colored blue, so you know what you have messed with. The program stores the original information for recall if you change your mind.

Fire up PE and you are first presented with a title screen. A stab at your return

key pulls up PE's main menu, which is clean and uncluttered, like all of the program's screens. Almost all of PE's screens use the full size of the monitor display. Windows, when used, are kept out of the way as much as possible.

All database editing and building can be done at any time—"on-the-fly." Function keys at the bottom of the spreadsheet screen bring you directly into the database for permanent changes or current-bid-only changes.

The database-edit menu includes five choices. The edit-standards selection brings up a sub-menu which allows you to quickly access group-phase and phase records, add-on records, material-class records and subcontractor records. This latter category allows you to enter information about your subs including space for a memo such as, "didn't buy daughter's scout cookies last year." Other menu selections are for creating and editing items, designing formulas, updating prices, and printing reports.

The database handles a lot of information, but we found it easy and quick to move through. The program design enables you to get full use out of it without going into the deeper levels of program detail. You can use it almost immediately. Just update for your local prices and go. Add the detail later as you need it.

Estimate takeoffs are done through the Produce Estimate option on the main menu. The menu allows you to merge estimates (up to seven at once); reprice an estimate by replacing item file prices or adjusting by a percentage for each or all five cost categories. You can also opt to clear all prices. Generating data to job cost, recalculating the spreadsheet, and estimate report options are further selections.

PE only requires about eleven steps

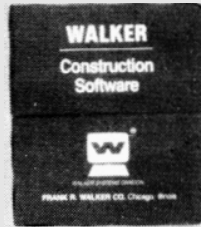
PE will let you adjust the labor for installing clapboards if the crew will be swinging from ropes siding a tree house.

from initiating a new estimate to a completed spreadsheet that shows the bottom line. Two more steps gets you a printed report. Takeoffs are easy. As you select items from the bid database, the program marks them with an asterisk. The selected items are then pulled back to the takeoff window, where you enter quantities. Formulas and calculator are available via function keys. When done, you return to the spreadsheet for final editing.

PE gives you fifteen report choices. You may print a takeoff audit or the spreadsheet. Reports are further broken down into seven estimate and six location reports. PE includes a true bill-of-materials report either cumulative or by location. You are kept in the reports section until you have finished. Reports can be sent to your primary or alternate printer, screen file, or other destinations such as a tape back-up.

Precision Estimating is an intelligently designed state-of-the-art estimator—clearly the best we looked at. The designers understand that estimating is really a series of exceptions, and PE is so flexible it is effectively "exception driven." We believe PE and PE+ will set an entirely new set of standards for estimating software.

Walker's Practical—Residential Construction Estimating
Frank R. Walker Co.
5030 N. Harlem Avenue
Chicago, IL 60656
(312) 867-7070



List Price: \$995

Requires: IBM compatible 2.0 or higher, or Kaypro CPM; 256K RAM; two floppy drives. Hard disk recommended.

"Based on Walker's Building Estimator's Reference Book, this program has all its formulas built in. Provides a comfortable question/answer format that's good for the computer shy. Good for tract-house developers."

Walker's *Practical* takes a unique approach to estimating—based on the company's widely used estimator's bible, *Building Estimator's Reference Book*. All of the program's formulas, conversions, and calculations are built into the program. The user supplies only raw data: generally just linear measurements, general specifications such as roof pitch, and specific material descriptions from the program's database. The program does the rest.

Walker comes on four floppy disks and is quite easy to install. While the company says it can be run satisfactorily without a hard disk, don't try it unless you don't mind switching floppies a lot. Telephone support is free for 12 months and can be extended for a fee.

As it turned out, we didn't need much phone support, since the program comes with a very good step-by-step tutorial based on estimating a large multi-storied frame house. It even includes a set of plans to accompany the text. The tutorial guides you through each function in a well organized manner. It is among the best we encountered. Unfortunately the tutorial is the only documentation you get. There is no reference manual or index that would allow you to look up a specific question or function.

When working with Walker, rather than filling in blanks on screens, the user is guided at every step by a series of question/prompts.

For example, in the price change section you will be asked, "Want a price change (Y/N)?" and then, "Change 11.75 to?" In the general-specifications category of the takeoff section you will be asked a series of questions such as "Ledger nailer?", to which you would specify the size and species of lumber. You will be asked the roof pitch, plan name, number of receptacles, toilets, stud sizes, spacing, and so on.

Prompt responses are either yes/no, a quantity, dimension or material type and size. Special prompts regularly ask whether your last set of entries was correct. At the end of each section of activity you are asked whether you wish to continue or exit to the main menu. (We wished it were easier to exit the

program.)

We had mixed reactions to the prompt system. It is a good way to keep the estimator from forgetting data since the program almost obnoxiously reminds you of every detail. Once we grew familiar with the program, however, it became a burden. For example, to make price changes, you have to wade through a series of yes/no questions for each item, one at a time. There's no way to scroll through the database, editing as you go. The same is true for the estimating section.

Error handling is also a weak point. You can delete characters only on the line you are working on. There is no way to scroll up or down the screen. At the end of a field of entries the program asks if the above is correct. If you have made a mistake and say "no", you are returned to the top of the field with all entries deleted. This means retyping everything, just to correct one small mistake! If the error is the last entry on a screen that includes names, addresses and so forth, the result is simply maddening.

Walker's main menu presents four choices. As with any of the estimating programs the first chore is editing and building your item database and price list. Selecting "Change Current Pricing" accesses Walker's database.

You may subsequently choose to either change the current prices or print them out. Walker's database comes without any prices, so you must type in a lot of information. If you chose to print out a price list, or for that matter any of Walker's reports, be advised that you cannot stop the printout without shutting off the printer. We were irritated by this, especially when printing out the dimension lumber file with 606 different lumber sizes.

The database is a straightforward item list. You can insert prices, and in most cases change their descriptions. The database is limited to 479 items plus a massive lumber price file with up to six different prices for 600 lumber sizes. This lets you price something such as a 8x10x12 in fir, hemlock, or pine.

Material descriptions are limited to

The prompt system is a good way to keep the estimator from forgetting data since it almost obnoxiously reminds you of every detail. Once we grew familiar with the program, however, it became a burden.

24 characters and you must remember exactly how they are entered. If you specify underlayment as "3/4 CDX FIR PLY," the simplest typo could throw off an estimate. For example, "3/4 CDX FIR PLY" could take forever to find.

Overall, we found the database limited. It is small and has no room for expansion. You can add your own items, but in doing so you displace others. Further, item details are virtually non-existent. There is no way to selectively assign add-ons, such as percent-

tage increases on concrete products, or to specifically break labor down into more than six types at a time. Price changes for the most part have to be made item-by-item.

We also found some logical inconsistencies in where items were placed in the database. Plywoods were in the sheet goods section, but luan was in the board-stock and millwork section.

Add-ons, except for sales tax rate, have to be incorporated either item-by-item in the price list or as lump sums at the end of the estimate in the additional-costs section. This means you have no idea what the prices and costs of the bid are until you print the estimate report.

An inquiry to Walker drew the suggestion of putting overhead into the cover letter. We prefer to have the option to identify overhead at differing rates against specific cost categories. Also, we want to be able to spread overhead, profit, and other add-ons across the bid, in cases where we don't want them itemized for our clients.

This points to a major fault of this and several other programs we reviewed: the inability to show costs until the final report. Without the ability to provide instant price and cost figures, computerized estimating loses one of its main attractions—the ability to give us more control.

To produce an estimate select "Plan Takeoff" on the main menu. Walker first asks for the file (bid) name and then whether you are re-entering a previous job. Walker will not list your jobs on the screen, so you need to keep a note-pad with a record of different jobs and their file names.

Walker suggests, even with a hard-disk system, using a different floppy diskette for each job. This isn't a bad idea. Otherwise, the chore of making backup copies could be tedious, particularly to those who are not comfortable with DOS and wild card commands.

If you are re-entering a previous job the program presents you with a re-entry menu listing Walker's 18 major takeoff divisions. The general progression is from the lowest building level (for example concrete work) up through a total of three levels and then on to roof framing, porches, windows, doors, cabinets, appliances, additional costs, and subcontractor costs. Walker does not allow for much leeway in estimating methodologies. You adapt to the program.

All new jobs must start with job specifications and general information. You are asked which of 18 categories you want to include in the bid. These include everything from appliances, cabinets, and concrete to labor costs, exterior millwork, heating, and drywall.

General information includes the plan name, architect, builder, and specifications on typical house sections such as the roof, cornices, walls, and heating.

Just tell the program that the plans call for two toilets, a tub, and a sink, and you get back a complete listing of pipe, elbows, and valves.

The data entered here, such as roof pitch 9/12, are gathered up by the program's built-in formulas and combined with quantity and dimension data (entered later) to produce the final estimate.

Walker's takeoff approach requires that you divide the levels into sections. For example, floor joists can be taken off in 20 sections to account for ells and so on. Each roof pitch is a section. Many estimators work in a similar manner, many do not. If you don't, Walker may be too much of a change. If you do, get out your yellow marker and mark your sections on the blueprint lest you forget.

You specify materials as you go along and the descriptions must be exactly as they appear in the database or the computer literally won't compute.

We suspect this gets easier with practice but it is still a demanding approach.

The documentation points out that leaving certain prompts blank, such as lumber type, will automatically pull up default items. The lumber default is the first column in the database. The default for building paper is 15# unless you type in Tyvek. There are other automatic defaults but no indication of what they are.

The program also makes a lot of assumptions about material choices and construction methods—based largely on Walker's *Building Estimator's Reference Book*. Just tell the program that the plans call for two toilets, a tub, and a sink, and you'll get back a complete listing of plumbing pipe, elbows, street ells, and valves. It does the same neat trick when figuring duct work for heating systems. This computerized fancy footwork is great as long as the program's assumptions coincide with your own.

Error handling or editing of bid takeoffs was cumbersome. To make changes you have to go back to the main menu and then select estimate changes. This allows you to access the different takeoff divisions and categories. In fact, this is the only place where you can look at your actual entries. You can't page up during the actual takeoff process to see what you've done.

When all takeoffs are completed you return to the main menu. To this point the program has not compiled or calculated anything. The program does its stuff when you call for a printout of the estimate. As the circuits gyrate and the printer hums, the screen flashes little messages to keep you posted. Walker does not allow you to see any of its reports on the screen, but you can print partial reports once the complete printout is done.

Walker is an interesting estimating program. We feel it would be most appreciated by lumberyards that are regularly asked to do conventional takeoffs for builders, or for builders doing tract housing with minimal design variations. Walker says that lumberyards are frequent customers, as are builders doing between five and ten houses per year.

Walker, however, was not for us. We were uncomfortable with the rigid, inflexible estimating methodology. We also kept wondering what the program was doing with the data we put in. The computer magic was impressive, but we didn't like the lack of control. We feel there are better options at comparable prices. ■

SCHEDULERS

Schedule Manager

Contractors Management Systems
11150 Sunset Hill Rd, Suite 300
Reston VA 22090
(703) 435-3172



List Price: \$995

Requires: IBM compatibles, PC/DOS 2.1 or higher, 192K RAM, two 360K floppy drives.

"Excellent scheduling program designed specifically for construction. Good tutorial, display intelligent screen display, simple to enter and edit. Top shelf all the way."

Construction Management Systems *Schedule-Manager* program is an extremely well thought out and versatile job tracking-system designed specifically for the needs of the construction industry.

The documentation is among the best we've seen. It's well written and complete, including an introduction to the use of computers, a clear overview of how the program works, easy-to-follow installation instructions, and a strong index. CMS offers *Schedule-Manager* on a 30-day trial basis. The copy you get contains a full working program, but with limited capacity to store data. After 30 days, you can either return the program or register and get the code number that unlocks the full program.

This software is so intuitive that you can learn to use it in a very short time, even without the lessons, which combine text with on-screen instruction. The hour-and-a-half lesson not only gives you specific, key-by-key instructions on how to perform all operations, but also introduces you to the subtle features that make *Schedule-Manager* so easy to use. For example, it has certain built-in defaults that speed data entry by anticipating the sequence of events required to build and use a schedule. After completing one step and returning to the menu, you find that the next step has been selected for you. All you need to do is accept the choice. This really speeds things along.

One of the first things we noticed about *Schedule-Manager* is its consistent use of the screen to display information. With few exceptions, the screens are identical, and well organized visually. Using graphic lines to box or border each area, the screen is generally divided into top, middle, and bottom sections. At the top are three lines of "help" text that change to provide messages about whatever data field the cursor moves into. At the bottom is a constant display of available command choices, so you're never at a loss to remember which keys do what.

The middle of the screen is divided more or less in half vertically. Menus are always displayed on the left, and when you make a selection, this side of the screen becomes the work area. The right side is reserved for displaying sup-

plemental information, such as lists of data from which you can make choices. The whole presentation is wonderfully simple and crystal clear. You always know where you are. In addition, the keys are used in a logical and consistent fashion throughout the program.

The step-by-step operation of *Schedule-Manager* is very logical. The Main Menu presents eleven choices, five of which are used to enter user information (date, time, operator's name and phone number, printer type). The other six are concerned with planning, using, and printing or reporting a schedule.

The first thing you need to do to use *Schedule-Manager* is enter the data that the program will use over and over again. There are six types needed, and you enter them as lists. You can create a list of activities like "Pour Footings" or "Hang Doors." These are broken down into "leads" such as "Schedule Concrete Sub" and "Order Doors." Other leads might be listed as "Select Paint Color" or "Select Light Fixtures." Up to 500 activities and 990 leads can be listed. Finally, you can use categories to identify personnel, or construction phases, or anything else you want to link to activities and leads.

Now you're ready to create a schedule. The schedule will be called a "template" because you will be able to use it again. The total number of templates is limited only by the capacity of your hardware. They really save time because they can contain up to 1000 activities and leads in different configurations, each pertaining to a certain kind of work which you commonly perform. It means you don't have to start from scratch each time you want to prepare a schedule. Once you've built some templates, you can simply select the one that comes closest to your needs, and modify it to suit current circumstances.

The screen is nicely arranged for template building. It holds seven pre-defined columns, and to build a schedule template, you supply as many rows of data as you need—up to 1000. You begin with the "workday" number, the day the particular task you're scheduling is to begin. Entering an "8" here, for example, means this work starts on the eighth day. Next comes "Activity" or "Lead" number, followed by the description you used when you made your lists. One time-saving feature: you can rearrange the schedule or search for a particular row of data by entering "L#" (for LIST and the number you want) or "S#" (for SEARCH and the number you want) in any number column on the schedule. This means that if you've scheduled 50 days of work, for which there is only room for a partial listing on the screen, you don't have to scroll your way up or down the list, but can go wherever you want instantly.

Then comes a column called duration, for the length of time the task is expected to take, followed by a column that identifies the task as critical or not critical. The latter is one of the wonderful things about *Schedule-Manager*. Not only does it display your choice on the screen and in reports ("YES" for critical, "NO" for not critical) it also flags the data according to these criteria. Then, after work has begun and you need to bring the original schedule up to date, it knows how to handle changes you might make. If tasks designated as critical are changed, the program automatically reschedules the entire list of activities and leads to show what the consequences are.

Once all of this information is estab-

lished, you have a template. You can make as many templates as you need, and when you're ready to schedule an actual job, you simply call up the template that's most appropriate, give it a job name and description, and go to work. But the real value of the program is in the way it manipulates a schedule once you've commenced work and want to keep track of progress.

The heart of the whole program is labelled "Updating a Job's Activities." This is where the real work is done, because wherever there's a need to schedule construction work, there's a need to reschedule. *Schedule-Manager* makes it a breeze. The screen displays a spread sheet much like the one used to build a template, but with four extra columns. One is for the date. By supplying an actual date when work is to begin, *Schedule-Manager* automatically assigns a calendar date to each activity or lead based on its workday number.

Another column shows the status of a particular task: "Not Started," "Completed," "On Schedule," "Ahead," and "Behind." Right next to it is a column which shows by how many days a task is ahead or behind. We'll see how these come into play in a moment. Finally, at the extreme right is a column which holds the number of the particular problem—established earlier in the problem list—causing the delay.

Here's how it all works. To update a schedule, you enter the date and call up the particular job you're interested in. The spreadsheet appears and you begin by going down the status column changing the entries as necessary. The first time you update a schedule, the status for every task will be "Not Started." If the job has been in progress for a couple of weeks, some tasks will already be completed. Enter "C" (for Completed). When you reach the row of an activity that is ahead or behind schedule, other elements come into play. Let's say the concrete subcontractor failed to show up for two days, so there are still no footings. When you reach the row that holds the activity "Pour Footings," you would enter "B" (for BEHIND) in the status column, and the number "2" to show that the footings are 2 days behind. Since the footing work is a critical activity, you want to make sure that "YES" is in the appropriate column. From this point you can reschedule the whole job to see how this two-day delay will affect the completion date.

But you can do more. To use the example in the tutorial, let's say you're tired of waiting for the concrete sub you originally hired and want to replace him. Go to the "Vendor" column, type "L" and a list of available vendors appears in a window on the screen. When you find the one you want, just type the vendor number from the vendor list screen and the old vendor is automatically replaced with the new vendor, and you are back at the update screen with the cursor in the "Problem" column. Type "L" again and the list of problems you created appears in a window. Choose the number for "SUB MISSED A DAY" and again, it's entered automatically.

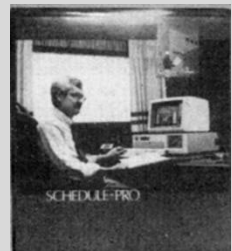
You have just fired one concrete sub and hired another. Moreover, you have a record of which task was delayed, for how long, and for what reason. (The only way to keep track of which vendor caused the problem is to compare printed reports of the original schedule with copies of the revised schedule.) You then reschedule the entire job to

account for the delay by returning to the update menu, choosing the "reschedule" option, and entering "+2" on the workday where you want the rescheduling to begin. *Schedule-Manager* automatically moves the start dates for all subsequent tasks back two days. The process is the same for tasks that are ahead of schedule; only the specific entries change.

Two classes of reports are available to both the screen and printer. Planning reports print lists of the schedule data (activities, leads, non-workdays, etc.) and templates on file. Management reports print the actual schedule in a number of useful formats. You can get a "Supervisor's Daily Checklist" showing what activities and leads are scheduled for a particular day, a "Job Schedule Report," which is essentially a printout of the schedule spreadsheet, an "Activity/Lead Schedule" sorted by category, vendor, or task, a "Vendor Report" sorted by type of work or individual vendor, and a "Construction Status Report" showing in summary form the original and revised schedules. As if this is not enough, *Schedule-Manager* includes a utility program called Sideways (Funk Software, Inc.) that allows you to print up and down instead of left to right. This enables you to generate a "Template Strip" or "Job Schedule Strip"—one report on several unburst pieces of tractor-feed printer paper—that you can put up on your wall to show graphically how the job is scheduled. I guess it's no secret that we liked *Schedule-Manager*. It's easy to learn, easy to use, comprehensive, flexible, and above all supremely useful. An elegant piece of software.

Schedule-Pro

H & S Software
Arrasmith Trail
Ames, Iowa 50010
(515) 232-2331



List Price: \$39.95

Requires: Apple, IBM compatibles, DOS 1.1 or higher, 128K RAM, two floppy drives.

"Inexpensive scheduling program based on Critical-Path theory. Easy to learn, but needs stronger manual, especially on day-to-day procedures for updating a schedule. Can't beat it for the price."

This uncomplicated scheduling analysis program may not have all the bells and whistles of the full-blown packages, but it delivers goods at a very reasonable price (\$39.95). It will run with or without a printer on monochrome or color monitor, and can be loaded from two floppy drives or one floppy and one hard drive.

The documentation very clearly and deliberately walks the reader through all of the program's procedures. It includes a brief primer on critical-path method—the popular schedule tracking system upon which it is based and with which it

assumes the user is at least partially familiar. The sample data and flow chart are helpful, but serious users should consult a more substantial reference on the subject. Otherwise, the manual is clear to the complete novice.

Because *Schedule-Pro* uses the screen and keyboard very consistently, it's very easy to learn and use. By the end of the two hours it took us to load the program, enter our own data, and print at least one version of every report, we felt extremely comfortable with almost everything (the "almost" is explained later).

The sixteen choices offered at the Main Menu look overwhelming at first, but are actually quite streamlined. Nine of them select reports, leaving seven well-defined functions to create and modify a schedule. After setting or resetting the working environment, you start a project by entering basic project information. A 40-character project name and description, supplemented by a 60-character report heading, help you identify the schedule. Then, you designate a 5-to-7-day workweek and, if you're going to use the cost-analysis feature, a percentage figure for job retainage. Finally, if you don't have a printer, you can conveniently set all reports to print to the screen only. After these preliminaries are out of the way, you're ready to start scheduling.

Before you start entering data, you must develop, with pencil and paper, a flow chart of specific tasks, each with a beginning and ending time or "node" and an estimated duration. The "tree" structure of this chart—the heart of the critical path method—will broadly outline how the tasks interrelate. Once the information is entered into and processed by *Schedule-Pro*, it generates several types of reports that give you pinpoint control over project scheduling and costs.

As you enter the flow-chart data into the program, it automatically numbers the tasks consecutively. Each must include a start and end-node number, and a number representing how long the task is expected to last. This is the minimum information you need to generate a critical path, but you have the option of adding more. Estimated crew sizes for each task are later used to generate manpower requirement reports, and the last four entries are dollar amounts used in cost analysis: scheduled value, previous application, work in-place, and materials stored.

The task description (up to 45 characters) can be very useful if, as the manual explains, you apply some forethought. Since 80-column reports will print only the first 24 characters, essential information should appear first on the line. But certain reports will also sort schedule information based on key words in the description, so it pays to be consistent. For example, in the tasks described as "select cabinets," "purchase framing materials," or "sub plumbing rough-in," the key words are "select," "purchase," and "sub," and these should be used for all activities of a similar nature if you want to be able to generate sorted reports later on.

Editing is easy and consistent throughout. After every screen you are asked to check all entries for errors. To correct a mistake, you simply select the appropriate line number and retype the data for that line only. Even after you've accepted a screenful of task data, you still have the opportunity to view, change, or delete it using another menu option.

Four basic reports are available, each in two versions—one based on dura-

tion (hours, days, weeks), the other on actual calendar dates. A fifth—the "Cut-off Date Report" shows the latest date a particular task can be performed without affecting the schedule. The reports take some practice to interpret properly but are quite useful. The Manpower Requirements Report shows what crew size is needed to accomplish a given task on schedule. A "Key Work List" gives a report sorted by whatever key words you have used in the task descriptions, so you can, for example, generate a list of everything that needs to be "purchased" or "subcontracted." The Critical Path Report and Task Bar Chart show all of the task data in chronological order, the latter giving a handy graphic representation of the schedule.

Two important concepts are essential to interpreting the completed schedule and probably require that you consult a reference work of critical-path theory to supplement the brief definitions given in the *Schedule-Pro* manual. These are "float" and "free float." In many reports, each task is assigned a task duration number which changes depending on whether the task is started or finished early or late. "Float" is the amount of time a task can be delayed and still allow you to complete the project on time, but when such a theoretical delay becomes actual, your schedule can have problems. If, for example, two tasks—"sub concrete footings" and "sub concrete walls"—both have a float of two, it means that they can be delayed two days without throwing the project off schedule. But if "sub concrete footings" actually falls behind two days, this will reduce the float of "sub concrete walls" to zero.

"Free float" describes tasks that are truly "critical." It is the amount of time a task can be delayed without affecting the project as a whole or any other task within the project. Consequently, a free float of zero means that task is critical; if it is delayed, the whole project is delayed.

Obviously, once a project is under way, the actual start dates and duration times will probably vary from the estimated schedule and must be re-entered if the reports are going to be meaningful. In other words, the critical path must be changed. In both cases making the changes turns out to be easy but time consuming. Unfortunately, the documentation completely ignores these vital aspects of using the program. You can learn by trial-and-error since the program is so cleanly designed, but there's no guarantee you'll be getting full use of the program. Furthermore the documentation offers little guidance on the use of the 31 report options—which can seem a bit overwhelming.

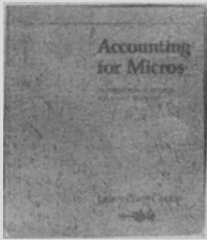
Another small inconvenience is that *Schedule-Pro* does not have a built-in utility for storing blank copies of schedules which can then be used as templates in the future. As the program is designed, you must re-enter all of the task data each time you enter a new job. If you're working with your data on a hard disk, you must first delete all *Schedule-Pro* files before entering new data. One remedy is to enter task data for several common types of jobs and store each one on a different floppy with an appropriate label. You can then copy the one you want to either a working floppy disk or the hard drive when you want to start a new job.

Despite its shortcomings, *Schedule-Pro* is definitely worth the price. It's easy to learn, simple to use, and gives up time with it. It would be a lot better, still, if H&S would add a tutorial, including how to alter a previously cal-

culated critical path, as well as some sage advice in getting the most from the reports. ■

ACCOUNTING

Accounting for Micros
James River group, Inc.
125 N. First Street Street
Minneapolis, MN 55401
(612) 339-2521



List Price: \$125 per module (discounts for multiple modules)
Requires: Apple, CP/M, or IBM compatibles (DOS 2.1 or higher), 256K RAM, two floppy drives. Hard drive recommended.
"Integrated general accounting system. Inexpensive, especially if multiple modules are purchased together. Program is not specific to construction industry, but can be adapted. Estimating module could be better."

This is the only integrated modular system we found in the under-\$1000 range. The five core modules—General Ledger, Accounts Receivable, Accounts Payable, Inventory, and Payroll—have been supplemented recently with Estimating and Job-Cost modules in an effort to accommodate the construction industry. The basic program is designed to do the accounting for any type of business.

James River Group recommends that you have an accountant help you set up the program, and we heartily concur. The design and accuracy of the initial setup is critical to the program's usefulness later on.

Getting Started

Since there is not tutorial, the manual assumes (and JRG recommends) that you will set up each module separately and run it for two or three weeks before setting up another, a process which produces a full working system in about six months. The documentation helps with step-by-step instructions on how to set up and operate each module. The problem with the documentation, though, is that it never gives on a single page a clear overview of how the modules interact. Instead you go through 15 or so pages of text filled with keystrokes and program messages before you've ever seen a single entry screen. Don't expect this to make much sense at first. By the time it does, you will probably have already set up programs wrong and will need to redo them. For example, the General-Ledger module needs to have several specific accounts set up if it is to interact with Accounts Receivable. But the GL setup procedures don't tell you this. Furthermore, the manual has no index to help you track things down when you need them. It seemed to us that this could have been handled better.

The good news is that, overall, as a total accounting package, the program works. The JRG people were very helpful over the phone in answering our questions—a service they provide to every user. And when they discovered a bug, they sent us a note in the mail with complete instructions on what it was, how it would affect our data, and what to do about it.

The Core of the System

The General Ledger (GL) is the core of the integrated system. It keeps track of data from all the other modules and generates two basic reports: the *Balance Sheet*, and the *Financial Statement*. Used by itself, it provides a convenient record of income and expenses.

If you're going to seek advice from an accountant, this is the module where you'll need the most help, particularly with the *Chart of Accounts*, which is the heart of the module. The program provides simple, straightforward entry and editing screens, and allows you to change data painlessly, as long as you know accounting. Like all accounting software, the program performs accounting functions, but is not an accountant.

Inventory (INV) does not interact directly with GL, but it does send data to Accounts Receivable (AR). While these two modules will work alone, they perform very well together. One limitation is that both INV and AR are designed for businesses that have an inventory of standard parts (with part numbers) and products that are sold on a daily basis to wholesale or retail customers. They can be used by general contractors (and the subtrades especially), but they're awkward since a builder's statements primarily contain invoices received from other vendors, and the AR module does not accommodate them easily.

The four modules we conclude would be most useful to the average builder are *Payroll*, *Accounts Payable*, *Job Cost*, and *Estimating* (PR, AP, JC, EST, respectively), mainly because they handle common employee records, and can help track your expenses job by job. Since JC requires PR and AP to be up and running, let's look at those two first.

Payroll

If you're looking for a module to start with, *Payroll* might be it. It will work all by itself, cut down considerably on time spent recording labor records, writing checks, and preparing government reports as well. Since the installation procedures are identical to all the other modules, it's a good overall introduction to the accounting system. And, even if you never graduate to a full accrual setup, *Payroll* will continue to be useful.

To set up PR you begin by entering basic information about your company (name, address, etc.), which will appear on all the reports, payroll tax information, and if and how PR will interact with other modules.

Next you set up the tax tables, starting with FICA percentages. Federal withholding tables, which are more elaborate, can be done manually or with a pre-packaged disk prepared by JRG for \$25. Next you can enter state withholding, and there's room for five additional standard deductions.

Employee information (name, address, social security number, etc.) can be entered directly from the timecard data-entry screen. Once this information is recorded, you can quickly call it up by entering the first five letters of an employee's last name.

Timecard entry is also straightforward. You enter the number of hours worked, and the program supplies the rate of pay per hour, calculates all the extensions (gross wages, federal and withholding, FICA, net pay, etc.), handles overtime automatically, and distributes the numbers to the appropriate employee file. It will then print the checks (hand checkwriting is also possi-

ble) and generate a number of useful reports, including W-2 forms.

Two things about the program are a little troublesome. First, there is no convenient way to correct errors in employee data once it is written to disk. Second, although you can use reference numbers to identify timecard data, only one is allowed per check. So if an employee works at five different jobs in one week, you must use the timecard entry screen five times if you want to use reference numbers. And you'll have to print five different checks. This doesn't make the program worthless—it still keeps good payroll records—but it means that builders whose employees work on more than one job in a single work period will have to keep track of who worked where in some other way.

Accounts Payable

The *Accounts Payable* (AP) module will run by itself, but requires a *Chart of Accounts*. If you've already set one up in GL, great; if not, AP gives you a way to set it up from inside the module. The general installation procedures are otherwise similar to those of the other modules. Like employees in PR, vendors in *Accounts Payable* (AP) can be set up on-the-fly, and recalled to the screen for invoice entry using the five-letter search feature.

To enter an invoice, you must provide six pieces of information: invoice number (alphanumeric), description (what was purchased or for whom), invoice date and due date, discount, and reference number. If, as is often the case, your vendors give you a discount based on your total statement, you'll either have to omit the discount, or apply it manually to each invoice.

Reference numbers are useful here since AP uses them to sort reports—in addition to sorting by vendor, due date,



Even if you never graduate to a full accrual setup, *Payroll* will continue to be useful.



and account number. As with other modules, reports cannot be customized, but enough options are available to give you the information in a form you can use. For example, you can print a list of vendors. Most reports require 132 columns on the printer, although some need only 80. This inconsistency is a bit annoying if you're using a daisy wheel printer, but a dot matrix ought to be able to handle everything on standard paper using condensed mode. The program includes automatic check printing and gives you the option of writing checks by hand.

Job Cost

Once PR and AP are up and running, you can set up *Job Cost* (JC), which requires both. It retrieves employee information from PR and vendor information from AP. Otherwise, JC performs all timecard and invoice entry functions.

Timecard data entry is similar to that of PR, but you have room for more information. In addition to handling payrate calculations such as overtime, you can assign a job name to hours worked in any way you wish. You can

also classify labor by category (for example, using the 16 CSI job divisions) and by task, using numbers, text, or both. This is extremely helpful later on since JC will sort reports using this information. Invoice entry gives you the same opportunity to fine tune your classification system, making the reports especially useful.

On the downside, as with the AP module, there's no way to view the *Chart of Accounts* on screen while entering invoices. You have to have a printed copy in front of you for reference or rely on memory, which is extremely risky if your information is being posted to GL.

Error handling in JC is typical of the other modules and is worth mentioning because it's a little awkward. As with most other screens in the program, the invoice entry screen allows you to use the cursor keys to type over a line of data to correct the information there. Fair enough. Once you leave the line, however, you must repeat at least six entries to correct data in any one line. This racks up a lot of keystrokes for every typo not caught in time.

Estimating

Estimating (EST) is the module added most recently to the JRG package, but its relationship to the rest of the system is dubious. It does not interact with JC, although data from JC can be entered manually into EST, along with percent-complete figures for each job to give you an idea of how actual costs stack up against estimated costs. In fact, the only module EST interacts with is AR, from which it retrieves all general customer information (name, address, etc.). The estimate entry screen is very simple. "Parts" can be retrieved from a limited database which has been set up in advance, and unique items can be entered by hand. Editing is awkward because the cursor must be operated by letter keys (for example, "D" for Down, "U" for Up). A running subtotal of the whole estimate is conveniently visible on screen at all times, but overhead must be entered with each item individually. And we had trouble getting the reports to run properly.

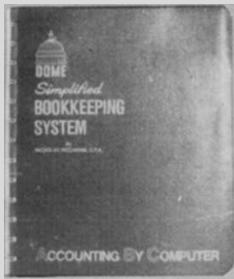
Our conclusion is that the program still has some bugs in it (it was just out of the development stage when we looked at it), and we feel certain these will be corrected in the near future. Even so, like the AR and INV modules, *Estimating* seems best suited to over-the-counter wholesale or retail sales. If estimating software is your prime concern, we suggest you look elsewhere.

Conclusion

Overall, JRG's accounting programs are simple, consistent, and easy to use. With the proper guidance from a trained accountant, they are easy to learn as well. The documentation is unassuming and helpful despite the shortcomings mentioned earlier. And the technical support from JRG is excellent. It does a lot of work at a very reasonable cost, and while it doesn't exactly match the complex needs of the construction industry (very few small systems can), it will help you keep your records straight with a lot less effort than you're using now. For the small builder who doesn't expect to get much bigger, a program like *Accounting for Micros* just might be the answer.

DOMe Simplified Bookkeeping System—Accounting By Computer

Great American Building,
9 Columbia Drive,
Amherst, NH 03031
(800) 528-5015



List Price: \$39.95 each year
Requires: IBM Compatibles DOS 2.0 or above, 265K RAM, One floppy drive or floppy and hard disk. (Also available to run on Commodore 64, Apple 11e or 11c, Tandy 1000.)
"A Dome bookkeeping book on computer. Unpretentious, wonderful program. Delivers precisely what it says it will, and is quick and easy to learn."

Accounting By Computer—DOMe Simplified Bookkeeping System is a wonderful little program. It is unpretentious, delivers precisely what it says it will and is remarkably easy to learn and use.

As you may have guessed, the program is a computerized version of the DOME Books we all probably started with, and may still use, for our business bookkeeping. DOME is bookkeeping, not accounting. It provides for an organized method of recording financial information and can mathematically compile it. Nothing more. It uses a cash-basis approach.

Just like the books, you buy the computerized version annually. If you already have a computer and don't need more than a simplified bookkeeping system, DOME is definitely worth its \$39.95 price tag. DOME is available in versions for Apple, Commodore, Tandy, and IBM compatibles.

Installing and setting up DOME requires only that you understand how your particular computer works and the basics of its operating system. Whether installing the system on a floppy or hard-drive system, the documentation provides easy to follow step-by-step instructions.

Initial setup requires you make a decision about your bookkeeping periods—monthly or weekly—and fiscal year. Once you have set these they *cannot* be changed. The program does ask you whether or not you are sure!

Setup also includes designating whether or not you are using a hard-disk, color or monochrome monitor, and printer. A printer is not absolutely necessary as all reports can be sent to the screen. We preferred the color monitor, because it makes it easier to identify your position on the screen and to use the windows.

DOMe's documentation is excellent—about the best we reviewed. Of course Nicholas Picchione, C.P.A. author of DOME has had a few more years of practice than most.

The documentation is well organized, includes a clear table of contents, a well-presented overview, and a section-by-section discussion of the program's operation and features. It also has a description of DOME accounts, glossary, and index.

Further, no DOME book would be complete without Picchione's discus-

Entering information into DOME's screens is straightforward. The screens look just like the pages in the book. And data entered can be easily edited.

sion of bookkeeping, IRS code, and list of deductions. Each DOME version comes with a quick reference card at the back.

Booting up DOME requires that you insert the program floppy, even with a hard-disk system. A current date screen comes up and then the program defaults to the Expenses screen. This is logical in that most of the time you would start here rather than in Accounts or Income.

You can get to the main menu at any time by stabbing the "escape" (ESC) key. The main menu, which actually appears as a window over whatever your current screen is, provides you with seven choices. Or you can hit "escape" again to return you to where you were.

Using the cursor or typing the first letter and hitting "enter" will bring you to one of six screens: Expenses, Income, Payroll, Accounts, Reports, or Set-up. "Q" is for quitting the program.

DOMe uses full screens for each of these activities. Movement through screens is either by cursor, the "enter" or "return" key, or the page-up and page-down keys.

Each of the six principal screens also gives you direct access to DOME's special features. These features, brought up through the first five function keys, are:

- An account list which you can easily scroll through and then "paste" the account of choice back to your expense or income screen;
- "Turn Page," which pops up either a list of weeks (if you chose a weekly bookkeeping period) or months. This is how you can go back and forth between periods to make corrections or future entries;
- An on-screen calculator and perpetual calendar. These are features we have rarely seen on much more expensive and elaborate turnkey accounting programs, and;
- A memo pad for each accounting period. You can write notes about an entry or whatever you want. It is not extensive but adequate and simple to use.

Entering information into DOME's screens is straightforward. The screens look just like the pages in the book. In the Expense screen, for example, there are fields for the date, to whom paid, check and account numbers, and amount. Data entered into each field can be easily edited.

The Income screen works much the same way. DOME allows for up to 400 entries per month or 100 per week. This is plenty of space for the small builder.

The Accounts screen is the backbone of DOME. There is room for 75 accounts divided into deductible and non-deductible expenses, taxable income and non-taxable receipts, and opening cash. DOME includes many account designations with the program. There is room to add your own and you can change the ones that are there. Data

entered in the expense or income screens are automatically posted to the accounts file. Further, DOME keeps running totals of each account category and compiles sub-totals and totals. A receipts over expenses and cash balance are always available for each period.

The Payroll screen is added as a convenience for record keeping. The figures entered into payroll, however, do not post automatically to expense or account records. You do have to make direct entries. Moving general information, such as employee names, from period to period is quick using "Control R." This will copy all the basic data to the next period payroll.

DOMe's report screen provides for six basic options: expense, income, payroll, finance (income and expense summary), accounts and memos. These may be customized by sorting of categories and time periods. Using some forethought and creativity you can even do some simple job-costing by ordering a report of expenses and income for, say, the "Smith job."

Reports default to the screen but can also be sent to the printer. Their format is clear and when a report is completed the program leaves you on the report screen to select another option.

We rate DOME highly and it is certainly a best buy. Our only caution is to the user, that you be sure that DOME is appropriate for your business. It is an excellent program for simple bookkeeping, but cannot be stretched into a one-write checking system or a full accounting program. Therefore, we wouldn't recommend dropping two grand on a computer just to use DOME. The paperback version runs about \$10.00 at the bookstore. If you are truly in need of a job-cost based accounting system DOME won't be satisfactory. ■