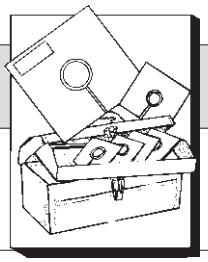


Shopping for 2-D CAD

by Philip J. Hagopian

Until recently, Computer-Aided Design (CAD) had been virtually ignored by all but the biggest contractors. This is because CAD has traditionally been expensive (costly work station hardware) and intimidating (complex software). Small builders are busy enough running projects without paying dearly for the privilege of learning "computerese."

Fortunately, CAD is no longer the exclusive territory of those with six-figure budgets. Today, affordable desktop computers offer processing power that 20 years ago cost upward of $100,000. You may already be using a computer with enough horsepower to run many off-the-shelf CAD programs. If not, consider upgrading your existing system or buying a new or used machine. But hold off on the hardware until you've chosen a suitable program and checked into system requirements.

CAD software has evolved, too. The friendly, icon-based "graphical user interface" (GUI) made popular by Apple's Macintosh computer is also available for the IBM-compatible platform and has made 2-D CAD software less complicated to learn.

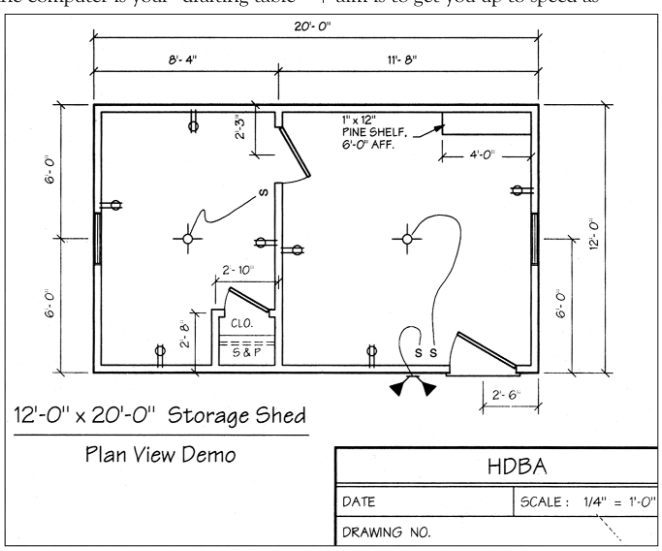
In the traditional drafting technique we're all familiar with, you sit at a drawing board and use an architect's scale, a T-square, a selection of triangles, and a 2H pencil to draw scaled lines on a vellum sheet. With CAD software, the computer is your "drafting table" and the screen your electronic "vellum sheet." The ease with which you can create and manipulate lines and objects on screen is where CAD software really shines.

My own CAD experience began in 1985 with Apple's 512k Macintosh computer (now discontinued), but it's typical of early CAD use on PCs as well. Back then, I pasted plan notes and framing details generated on the Mac onto hand-drafted drawings. Today, I use a more powerful system to prepare the entire drawing. I plot a D-size master for each page of the plan set, and they're ready for diazo run-off. This system has proven cost-effective over the years, even for low-budget residential additions.

Reasonable Expectations

The biggest expense of adopting CAD is not the cost of the computer, nor the cost of the software, but the cost of the "learning curve" — the time it takes to become a productive user. Sophisticated programs offer "power" features like multiple symbol libraries, associative dimensioning, and a macro or programming language. If you earn your bread-and-butter by production drafting, a feature-laden program is a good long-term investment.

But if you're new to CAD or your drafting needs are modest, lower-priced, no-frills 2-D CAD programs are generally easier to learn. Their aim is to get you up to speed as quickly as possible, while still providing a good mix of features. Some even offer on-line help, which minimizes treks through the manuals searching for answers.



Take a hand-drafted version of a project like this shed to a CAD demonstration at your software dealer's showroom. It should take about an hour to produce a CAD version. Pay close attention to the procedures for drawing lines, setting dimensions, creating symbols, and writing notes.

Try Before You Buy

A builder I know went into a dealer's showroom with the notion of buying a computer that would "do" house plans. While there, he was expertly waltzed through the ultimate CAD office — computer, software, and eight-pen plotter. He even watched a finished floor plan plotted seemingly without effort before his eyes. Convinced he was buying the productivity gains he'd heard so much about, he purchased the entire system.

Back in his office, he proudly displayed the new system for clients and subcontractors to ogle. During the next four to six months, however, he tried unsuccessfully to reproduce the professional look of the sample plan he'd seen in the showroom. Each bulldog attempt to master the software led to greater frustration. Much to his embarrassment, he was finally compelled to farm-out drafting work in order to keep up with his work load.

You can avoid this kind of disaster by taking time to define your needs and realistically evaluate the productivity gains you can reasonably expect. If you don't already know which programs you're interested in, you can read reviews in computer magazines or talk with fellow builders about products they've used or heard about. Another option is to hire a consultant for a couple of hours. Hire someone who's experienced with CAD programs and knows construction as well.

The Storage Shed Test

Don't be satisfied with just the packaged "demo" disk some vendors send in response to an inquiry. Insist on testing the full current release of any software you're considering. Something I call the "Storage Shed Test" can help you evaluate a 2-D CAD program. Before you arrange for a demonstration at a local computer software showroom, create a dimensioned plan view of a small (12 x 20-foot) two-room storage shed. Actually, it doesn't have to be a shed, but it should simulate a scaled-down version of the type of work you want to be able to do with the software. Include typical design elements, such as an exterior and interior passage door, a window, and perhaps a few duplex receptacles and a switched ceiling light. Next, add a few notes, a border, and a title box (see illustration).

Bring the shed drawing with you to the demonstration. When the introductions are over, ask to have it drawn using the test software. This is a fair request and will help you see what steps are needed to start a new drafting project. Watch how the drawing is set to scale and note the ease or difficulty of performing each step as the drawing progresses: drawing lines and objects, setting and changing dimensions, creating symbols, and writing plan notes. Observing software being used in a "real world" situation offers a revealing glimpse into its usefulness and complexity. More importantly, it will provide a benchmark against which all programs can be evaluated.

The completed storage shed drawing should take no more than 60 minutes to finish (minus time taken to answer questions). Of course, not all people will be equally proficient with the software they're demonstrating. Ask for further explanation if something seems confusing or appears to have been accomplished in a convoluted fashion.

Selecting the appropriate CAD software for your company isn't just a matter of buying the package with the most features. Both basic and complex programs can increase productivity and polish your firm's professional image. Some contractors may be able to make a major investment in the "learning curve." But for others, a low-cost, easy-to-learn 2-D CAD program will offer the best overall value. ■

Philip Hagopian is the owner of Hagopian Design/Build Associates in Merrimac, Mass., where he also tests CAD software for Macintosh systems.

Computer Bytes

PC users might want to try DR DOS version 6.0, an alternative to the industry standard MS-DOS operating system. It offers built-in data compression to increase the storage capacity of your hard drive, the ability to free up RAM by loading software drivers and TSR programs into high memory, and a graphical user interface called ViewMax. DR DOS is virtually interchangeable with MS-DOS and includes its own version of all MS-DOS utilities, so you won't have to learn new commands. The program is available for under $70 from retail stores and mail-order houses, or from Digital Research, 70 Garden Ct., Monterey, CA 93940; 800/638-9273.