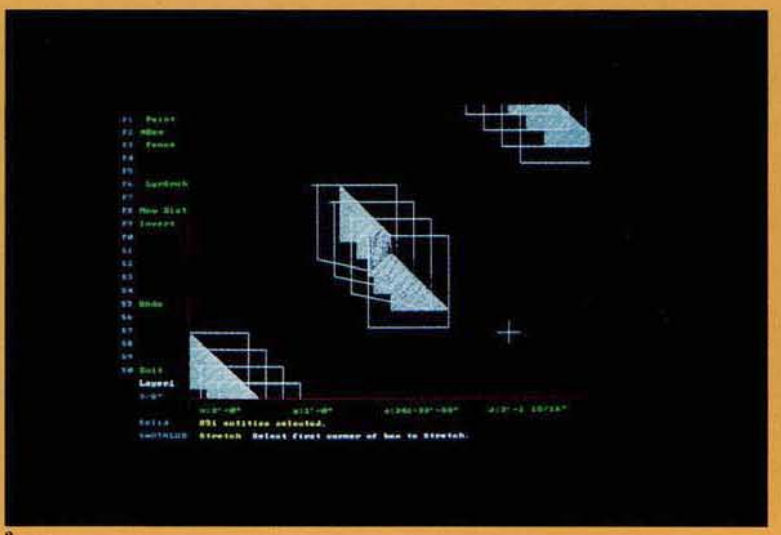
Fine-Tuning DataCAD 4.0

An object can be copied in three dimensions at once—to a rectangular or circular array. In this case (1), a hollow square with triangular hatched area was copied to produce an array of 16 in two dimensions, at an angle, in one command sequence. A third dimension could have been added. The

1



2

DataCAD is a full-featured drafting and modeling package with good database capabilities. Version 4.0 comes with a display list processor for faster redraws. The 3-D modeling program, once an extra-cost add-on, is now standard. It is particularly easy to edit 3-D drawings in DataCAD, and to visualize where you are inside them.

This is the first full update of DataCAD since the original developer, Microtecture, was taken over by Cadkey in mid-1989. It includes more than 60 changes. Most of the changes are small—they fall into the "fine-tuning" category. Taken together, however, they make an already smooth-running program even easier to use. That plays to DataCAD's strengths. In many offices, it is used at the very inception of projects, for modeling and massing studies. Files are then fleshed out on DataCAD into production drawings. Not many full-featured CAD packages are easy enough to use that way. Version 3.6 was reviewed in RECORD January 1989, pages 125-127.

Not easy on the old AT's

DataCAD is not an easy program to use with a network on older AT-type computers, because it takes up most of the normal DOS 640 Kilobyte memory area. In fact, it might be wise (as the manual suggests) to use DataCAD with PC or MS DOS 3.3 instead of DOS 4.01 even if you do not network; the last-named takes up more memory. Another approach is to use DR DOS 5.0, the MS DOS clone from Digital Research.

If you are planning to network, use a computer with 80386, 80386SX, or 80486 microprocessor. This will allow you to use an inexpensive third-party program such as QEMM from Quarterdeck or 386max from Qualitas to load most of DataCAD into "extended" memory above the normal 640K. Once all is set up, DataCAD can use a network to store and retrieve files with reasonable ease.

DataCAD will work with many graphics accelerator boards, but thanks to its compact file structure and built-in display list processor software, an accelerator card is often not necessary. Consider one, though, if your drawings use lots of hatched (shaded) areas, and your drawing technique results in many screen redraws.

The display list, as is typical of such software, uses expanded, not extended memory. Whether or not you are using a third-party memory manager, you use DataCAD's configuration program to reserve expanded memory for the display list. If the display list requires more memory than you have, the excess will spill over onto the fixed disk. But that takes time, defeating the whole purpose of having a display list anyway. (For a discussion of how display lists work, see RECORD, September 1990 pages 187-190.)

Only one view is available on-screen at a time, but views can be changed quickly. The configuration program, by the way, is menu-driven and easier to use than previous versions. With it, you can be up and running DataCAD in an hour or less.

Among the other changes:

- Screen pan, scroll, scale, and refresh can be controlled from the text-entry menu, making it easier to place text properly. Text can also be scaled either in the drawing's absolute coordinates or relative to the current plotting scale. Text settings (font, size, and so forth) can be viewed at once. Many new fonts, including hand-lettering, have been added.
- Hatch patterns can be drawn to fill only part of a surface; the boundary can be defined from within the Hatch menu. Many hatch patterns come with the program; you can develop others yourself.
- It is easier to copy an array of objects at an angle to the original and to fence objects for copying, and to undo erasures.
- Many new macros are included. One of them allows near-automatic creation of 3-D windows and doors in a wide variety of styles. Individual components can be specified on a bill of materials, and the 3-D objects can be rendered with the optional Velocity program. These are added to macros for stairs, spiral staircases, concrete beams, and so forth.
- Another macro allows fly-throughs with or without hidden-line removal. The fly-through may be saved as slide images for faster viewing later.
- Tolerances can be added to individual dimensions. Dimensioning has been improved generally, with easier changes for

stretch facility in DataCAD is particularly powerful (2). In this example, we've stretched the bottoms of the boxes at center screen.

styles, colors and so forth.
• Maximum drawing-file size was increased to 6 MB from 4 MB.

One change that many users have been waiting for—the ability to send output to a printer instead of a plotter—is not yet ready. But it is promised for this year. In the meantime, you can "plot" a drawing to a file using HPGL (The Hewlett-Packard Graphics Language), then print on a laser or dot-matrix printer that can read HPGL files. Walls are limited to two sides—no multiple parallel lines unless you replicate them, or write a macro to do the job.
But the sides can be hedges or other custom line types.

A more or less unlimited number of symbols may be invoked and brought into a drawing. Symbols are not dimensionless; that is, if you want two file cabinets, you must create two symbols, rather than using a universal one that you stretch or rescale. Symbols can be rotated or mirrored, however. And, once a symbol is brought into a drawing, it can be exploded and modified, then saved as a new symbol. You can add as much information as you want about each symbol—price, source, size, name, and so forth. The default is six fields of data, with 80 characters maximum per field. But you may specify more fields if you want.

Predefined reports include ones for costs, quantities, and so forth. Reports are standard ASCII files that can be added to a drawing, sent to a printer, or saved as a text file. The text file, in turn, can be split into data, a form that can be processed by spreadsheet programs such as Excel and Lotus 1-2-3, or by database programs such as dBase IV.

In short, DataCAD deserves a look, especially for small and medium-size self-contained architectural or multidisciplinary offices. If you expect to exchange files back and forth with outside designers (for hvac or structural work, for example), modifying designs as you go, you may run into trouble — unless all the outsiders use DataCAD, or unless you set up rigid rules for drawing formats, to assure that translations via DXF will work. *Steven S. Ross*

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DataCAD 4.0

Equipment required: IBM AT, PS/2 or compatible (that is, any computer with an 80286 or newer microprocessor), 640K of random-access memory (2 MB or more recommended), math coprocessor (80287, 80387 or compatible), mouse or digitizing tablet. Oddly enough, DataCAD cannot be configured for the PS/2 mouse using the PS/2 mouse port. All of the program files take up close to 7 MB on your fixed disk.

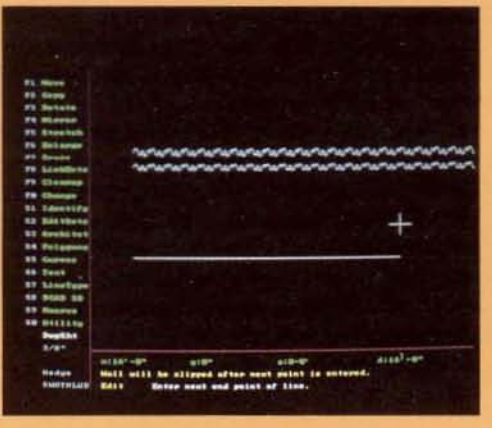
Vendor: Cadkey, 440 Oakland St., Manchester, CT 06040. 203-647-0220. The base price is $2,995 for new users. Upgrades from Version 3.6 are $995. Velocity, the rendering program, is $495. The base price does not include support; that's $695 extra for a one-year maintenance package (including quarterly upgrades) if bought within 30 days, $995 later. The fee for each extra user within a company is $995, plus $155 extra for annual maintenance.

Manuals: An improvement from earlier versions—which were already pretty good. There are three volumes—a design and drafting guide, one for modeling and viewing, and one covering DataCAD AEC, the integrated program that customizes DataCAD for architects and others who deal with designing buildings rather than industrial parts. A fourth, empty, binder is supplied for add-on programs such as Velocity (for rendering). Tutorials are long-winded (this is a full-featured package, remember, with lots to learn), but first-rate.

Ease-of-use: Aside from some idiosyncratic menu trees (you have to load a default drawing, for instance, before going to the menu that allows you to read in a DXF file, and you do not exit the system from the root menu), DataCAD is a model of good software design. In other words, you can use it efficiently with little training. As you progress, you learn new tricks as you need them. The macro language is straightforward and feature-packed.

Error-trapping: DataCAD does its best to keep you out of trouble. Out of the box, for instance, it automatically saves work as you edit it, into a file with an .ASV extension. And it always leaves a backup copy of your last editing session. It will not load a DXF file if it senses an error (usually some entity that it cannot handle) during the translation. That can be a bother, because you are barred from using the file at all. But it does keep corrupted files out of the system. We were unable to load large files written with the AutoCAD 11 DXF-out command.

DataCAD can keep track of 1,000 drawing layers; other common CAD software can track as few as 32. So be careful if you expect to do back-and-forth transfers. Be careful when clicking on numeric values. A quick double-click on a value inserts a double value. That is, click on "4" twice, and you enter "8" on the command line.



Want a "wall" of hedge? Specify "hedge" as linetype, and draw the "wall." The line below will be turned into a hedge as soon as its second endpoint is specified.

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