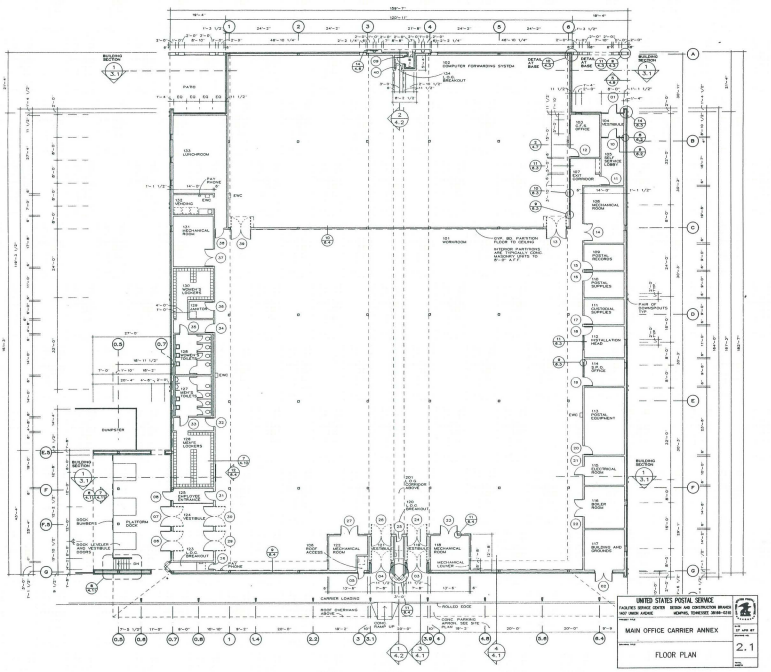
Perspectives

The MICROTECTURE A/E/C Newsletter

Volume 2 Number 2



DataCAD Profile: Gassner, Nathan & Partners

by Stewart Brown

Gassner, Nathan & Partners has provided architectural and planning services for almost 30 years and has earned a solid reputation for work on a wide variety of project types. In recent years, much of the firm's work has been in multi-story office buildings and high-rise hotels. Other recent projects include buildings for universities and government agencies. Located in Memphis, Tennessee, the firm typically employs 20 to 25 people, half of whom are registered architects.

In the summer of 1984, GNP formed a committee to investigate CADD. The committee members included Tom Nathan, FAIA, and three project managers, including me. We attempted a thorough investigation, including hands-on experience with every system we could find. After ten months we found ourselves disappointed. The systems we favored were difficult to use and unaffordable. The systems we could afford were difficult to use and either too limited or just didn't work.

In June of 1985, we attended the AIA convention in San Francisco, hoping to see something new that would put us back on track. At the Microtecture booth, I was pleasantly surprised. After having tried various systems over the past ten months, I naturally expected to have to ask lots of questions and wade through typed-in commands (with command modifiers, variables, etc.) just to draw a few lines. While waiting for the availability of one of the Microtecture staff, I started playing with the mouse and actually found myself drawing after only about five minutes. You've probably heard the word "intuitive" used to describe the program's user interface, and I don't know a better word for it. The program didn't seem to "fight" me as some others had, and so it actually seemed fun to use.

Over the next month we thoroughly investigated the product and the company. DataCAD was new and there was not yet a large installed user base. The program's command set was not as full as that of some other programs. However, we recognized it as a superbly designed user interface with a complete set of fundamental commands. It did what we needed in a far better way than other programs, and we knew that everyone in the firm could easily learn it. So in July of 1985 we purchased the system and immediately got to work.

We started with two CADD stations (Compaq 286 machines with IBM PGA monitors) which were shared among the three project managers. At GNP, most design work on significant projects is performed by partners Jim Evans and Louis Pounders. Project managers then lead small teams of architects through the design development and construction documents phases. Our plan was that the project managers would learn the system first, then these individuals would spread the learned techniques throughout the office. Our reasoning was that more progress and productivity would be gained by putting the tools in the hands of our more experienced (and more expensive) personnel than by putting them in the hands of our less experienced (and less expensive) personnel.

The first projects were Hampton Inns, managed by partner Rusty Taylor. The system was ideal for these, as each new Hampton could build on the previous work. By the fourth Inn, we had enough templates and previous work in the computers to generate a new set of Hampton documents almost entirely by cut and paste.

By June of 1986 the systems were well integrated with our production processes and we were using them on almost all our projects. But we were running into problems. First, managing a growing library of details, templates, forms, etc. on two separate machines was a nightmare. Second, two machines were not enough; tempers would flare when deadlines grew near and access to machines was required. It was difficult if not impossible at times for an individual to just "move" his project to machine #2 if his time was up on machine #1.

We found the solution to our growing pains to be a network. In June of 1986, we acquired a Novell Arc- net system with an AT for the server. We added two more CADD stations, bringing the total to four networked stations. Although the cost to add the two stations was somewhat more

Continued on p. 8

From the President

Addressing the A/E/C Marketplace

The recent announcement regarding the sale of Calcomp's Personal Systems Division, including CadVance, to a West German concern is graphic evidence of the highly competitive marketplace which exists today in the A/E/C CAD industry. Calcomp's decision to throw in the towel must reflect some of the frustration they experienced in attempting to formulate a viable software solution for the A/E/C market.

Calcomp clearly recognized the need for both 2-D and 3-D software. Their solution involved licensing a separate three-dimensional product from an overseas vendor, and then marketing these programs as a complete solution to the needs of the A/E/C market. Fundamentally, the relationship between the 2-D CadVance and the 3-D Solid Vision was problematic. Data transfer between these two programs could be accomplished only through an intermediate file format, and the results were almost always less than satisfying.

In Calcomp's case, this solution was unsuccessful for a variety of reasons. But their decision not to integrate the two- and three-dimensional programs is an important statement about their perception of the product requirements for the A/E/C.

This approach is apparently shared by a number of other PC CAD vendors, including VersaCAD and AutoCAD, both of whom have chosen to offer (through acquisition) satellite programs to provide three-dimensional solutions.

At issue is the appropriate database structure for solving complex real-world problems in building construction. At risk is the correct strategy for long-term product viability.

Microtecture's formula for an A/E/C product is unique among the PC CAD vendors. Version 3.5, which will be released early this summer, represents a tremendous engineering effort to provide an integral or "seamless" interface between 2-D applications and those requiring 3-D editing operations. We have worked for many months to develop the fundamental elements of this system.

Two critical components of this are the new 3D Editor and the DataCAD Applications Language (DCAL). Both of these extensions are described in this issue of Perspectives. The new capabilities are themselves structured on other less visible components of DataCAD which have been engineered to address the special requirements of a seamless product.

In the survey of architectural offices released by the AIA in June, DataCAD is ranked as the second most popular CAD system for small firms, trailing well behind the market leader but ahead of both CadVance and VersaCAD in installed base. What remains to be seen is the amount of market penetration the current leader can achieve with a generic product which relies on ad hoc solutions for the special needs of the A/E/C. If the building industry demands a more carefully crafted software solution to fill these special requirements, DataCAD, together with the products from other companies who have dedicated themselves to the A/E/C market will be here to fulfill the need.

Stuart Griffin Burgh, AIA
President

3D Viewer
3D Editor
Hidden Line Removal

DataCAD's 3D System is a fully capable three-dimensional drawing and modeling system that integrates with the DataCAD two-dimensional program. The 3D System is available as three separate modules. These modules may be purchased separately or in combination to allow you to configure your DataCAD system to suite your specific needs. The new DataCAD 3D system now contains sophisticated 3D viewing, 3D editing, and hidden line removal. DataCAD 3D also supports a large variety of new three-dimensional shapes.

The DataCAD 3D modules operate completely in tandem with DataCAD version 3.5 interface and drawing files. You will still be able to use DataCAD for drawings in the same manner as you always have, except that now you can create three-dimensional models and images, or both simultaneously because drawings, three-dimensional models, and three-dimensional images share the same drawing files.

DataCAD 3D is comprised of three separate modules which may be purchased in a variety of combinations.

DataCAD 3D Viewer - Three-dimensional wireframe viewing module.

DataCAD 3D Editor - Three-dimensional shape entry and editing operations.

DataCAD HLR - Hidden line removal system.

DataCAD 3D may be configured in any one of four possible combinations.

System 1 - 3D Wireframe Viewer only.

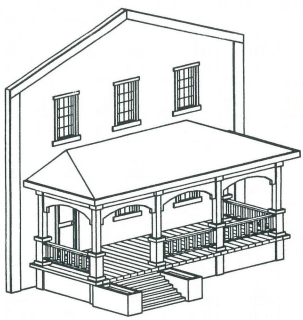
System 2 - 3D Wireframe Viewer + 3D Editing System.

System 3 - 3D Wireframe Viewer + Hidden Line Removal System.

System 4 - 3D Wireframe Viewer + 3D Editing System + Hidden Line Removal System.

Three Dimensional Viewing System

DataCAD 3D is capable of creating views of drawings and models in four different types of three-dimensional projections.



Front Porch

Front Porch and facade created with DataCAD3. Railings and column units are 3-D symbols. Windows and door in facade, and planter openings are holes in their respective slabs. Image required approximately 10 minutes to compute on a NEC APC IV Compter.

Orthographic Projections
Standard plan view

Parallel Projections
Isometric
Elevation from any angle or height.
General rotated parallel projection.

Oblique Projections
Plan Oblique (architects axonometric)
Elevation Oblique
Variable Oblique angles and factors

Perspective Projections
One, two, and three-point perspective projections from any viewing angle

Clipping Cube System

The DataCAD 3D viewing system supports clipping cubes in any view. Clipping cubes may be used both to facilitate viewing operations, and as a tool for simplifying data entry and editing operations.

Saved Views

The DataCAD 3D viewing system supports an unlimited number of saved three-dimensional views for efficient editing, analysis, and presentation. Saved views remember all pertinent viewing parameters including projection, windowing, clipping and editing parameters. Saved views may be edited, deleted, or renamed.

Saved Images

Images created using the DataCAD 3D viewing system may be saved to layers or files for later composition, editing, and reference.

Three-Dimensional Editing System

DataCAD 3D is now a complete three-dimensional editing system. Three-dimensional shapes may be entered in the standard orthograhic viewing projection, or may be entered with the drawing or model positioned in any orientation to the screen.

DataCAD 3D Editor allows for the selection of shapes during editing operations in any view including orthographic, parallel, perspective, and oblique projection.

The DataCAD 3D Editor allows the editing of a model or image in any orientation relative to the screen. DataCAD 3D Editor also supports the following three-dimensional editing commands:

- Erase
- Move
- Copy
- Rotate
- Enlarge
- Mirror
- Stretch
- Explode (3D shapes into lines or polygons)
- Change (3D attributes)
- Hole (add and manipulate holes in objects)

Other Editing Features:
Automatic editing of incline planes and roof systems.

Editing of individual three-dimensional shapes (e.g., adding, deleting and moving of individual vertices in a polygon)

Three Dimensional Shapes

DataCAD 3D supports a wide variety of new three-dimensional data types which may be used for drawing and three-dimensional modeling.

All three-dimensional data types may be entered and edited in any orientation in three-dimensions.

(Continued on p. 8)

Questions & Answers

by Dan McDaniel

1. *How do I use the DXF read/write module of DataCAD?* Go to the File I/O menu of DataCAD. To write the current drawing file in DXF format select WriteDXF. You will be asked for the name of the file to write to. DataCAD will suggest the same name as the present drawing. If this is satisfactory press the Enter key. If not, type in the desired name, and press Enter. To whatever name you choose, DataCAd will add the file extension 'dxf'. The drawing will then be written to the file in DXF format.

To read a file that is in DXF format, select ReadDXF. A list of names of available dxf files should appear in the menu window. If not, the path may be set wrong. Select new path, and enter the correct path to the directory where your DXF files are kept. Pick the name of the file to read from the menu. DataCAD will then read the file and display it on the screen.

2. *I was writing to a DXF file when DataCAD displayed the error message, "Invalid Autocad layer name." What does this mean?* Autocad insists that layer names be in all uppercase letters. Notice that DataCAD suggests a new name for the layer which is the same as the original name, but is all uppercase. If this is acceptable, press Enter, otherwise type in the layer name you prefer.

3. *Will everything from the Autocad drawing be reproduced in DataCAD?* No. Only entities that DataCAD recognizes will be read into the new drawing. For example, DataCAD does not use polylines, so it will not read these lines into the new drawing. □

Laser Jet Plotting

A new product from Insight Development Corporation allows you to plot drawings on a Hewlett Packard LaserJet or compatible laser printer. The software package, called 'LaserPlotter,' accepts plot files containing data for the HP 7470A plotter, and translates them into a form usable by the laser printer.

At a resolution of 300 dots per inch, the LaserJet makes a very nice drawing. For some drawings it will do a nicer job than a plotter since it produces a finer line than a pen.

The program can be run either by using the menu or from a batch file. The menu is easy to use, and allows you to select various options for plotting. You can select one or more files to plot, and each will be sent to the printer in turn.

Continued on p. 6

Republic Research, Inc.

1st Authorized DataCAD Training Center

- DataCAD courses for all levels
- individual CAD work stations
- limited class size
- tested curriculum
- special programs for authorized DataCAD dealers
- prime location - 1 block from Microtecture

For further information contact:

Republic Research, Inc.
801 W. Main Street
Charlottesville, Va. 22901
804-296-9747

DCAL — DataCAD Applications Language

With the release of DataCAD version 3.5 this summer, Microtecture will begin shipping the new DataCAD Applications Language program. This product, which represents over a year of effort by Microtecture, is a significant step toward opening the architecture of DataCAD to third party developers. DCAL is designed to be used by developers and experienced programmers to extend the functionality of DataCAD while having access to the user interface and graphic database capabilities that have made DataCAD so successful.

DCAL is a compiled, block structured programming language, similar to Pascal and Modula-2. The product contains three pieces of software. The first of these is internal to DataCAD version 3.5 and actually executes the programs created with DCAL. This gives every user of DataCAD the capability to run DCAL programs. The other two pieces are available as a separate product. These are the DCAL compiler and linker. Initially, this product will be available through the Microtecture Certified Developer Program. The compiler is used to translate programs into an intermediate object format. The linker is used to combine these object files into an executable program that runs inside DataCAD.

Some of the features of DCAL include:

- Separate compilation and linking.
- Four megabyte code and data space.
- Access to all DataCAD menus.
- Access to most DataCAD internal variables.
- Manipulation of the user interface, including the mouse, function keys, and message lines.
- Complete read, write, and modify access to the drawing database, including the new 3D entities.
- Ability to read and write text files and random access data files.
- Creation of digitizer tablet menus.

Using these features, an applications programmer can create a variety of sophisticated products to work with DataCAD version 3.5. Typical applications include:

- Civil Engineering
- Landscape Design
- HVAC layout
- Structural Engineering
- Electrical Engineering
- SDI Weapons Simulation

A DCAL program can perform either simple utilities, such as importing data from an external program, or it can be as sophisticated as replacing the existing DataCAD user interface with an interface designed for a specific discipline. With separate compilation, writing very large programs is easier than with non-modular languages. Programs can be tested in pieces and combined into the final product.

On May 1st and 2nd, the first DCAL Development Conference was held near Washington, D.C. Some fifteen third party developers attended to learn how to build applications that work within DataCAD. The class was taught by Microtecture's development staff, and was an in-depth look at DCAL and DataCAD version 3.5. Several sample programs were written by the class that demonstrated the capabilities of DCAL. Among these were programs to write data files, scan the database, use selections sets, and use digitizer menus. □

Form Layout Files

When you want to extract information from the DataCAD drawing database about the symbols which are in the drawing, you select FORMS from the template menu, and then select a particular form such as DCADCOST. The information is then displayed on the screen. The particular information selected for display, as well as its layout on the screen is determined by instructions in a file named DCADCOST.FRM. This file and the other form layout files are normally kept in the directory\ mtec\frm.

A form layout file is a text file which can be edited using the EDLIN, which comes with MS-DOS, or any text editor. It contains instructions which tell DataCAD what information to extract from the database, and how to display it. In this article we will look at the structure of a form file. With this information you should be able to create custom forms.

Sequence

A form file has two major sections. The SEQUENCE section determines the over- all appearance of the form when it is displayed on the screen. It can contain text, location labels, or commands.

1. Text. Text can be entered, and will appear on-screen as entered. Text includes letters, numbers, and punctuation characters except the reserved characters (! @ # * + - / [] <>). This text will appear only in the on-screen display of the form. It will not be sent to the printer or a file, nor will it transfer to the drawing.

2. Location labels. A location label begins with the special character @ followed by an upper or lower case letter. The letter serves to identify the label for future reference. The letter should be repeated enough times to give a field wide enough to contain the information that will appear there.

Example:
@aaaaa this sets up a field that is six characters wide, and can be referenced by the letter "a"

If the same label appears more than once in the layout, the last occurance overrides the earlier ones. Lower and upper case letters are distinct.

3. Commands. An asterisk in the first position in a line marks the beginning and ending of a repetitive area in the form. Within the repetitive area DataCAD will display a line of information for each symbol specified in the DEFINITIONS for the form.

Continued on p. 6

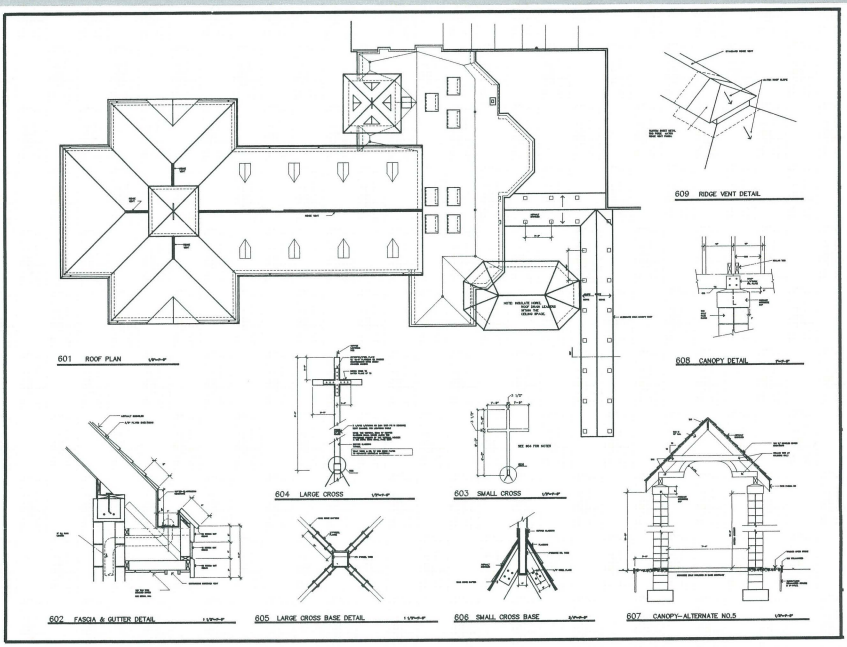
CAD HELPER

CAD OFFICE

Totally Menu Driven
Client DataBase
Project DataBase
CAD File Manager
Word Text Processor
Billing, Receivables, Notes, Scheduling, DOS Helper

Cad-Ready Inc.
10845 N. W. 2 Court
Miami, FL 33168
305-756-1525 or 758-4652

"Our experience has shown new operators can become productive in roughly two weeks."

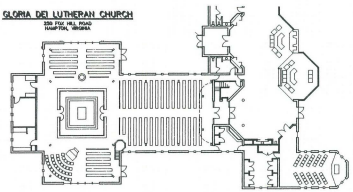


Lawrence Cook & Assoc., P.C.

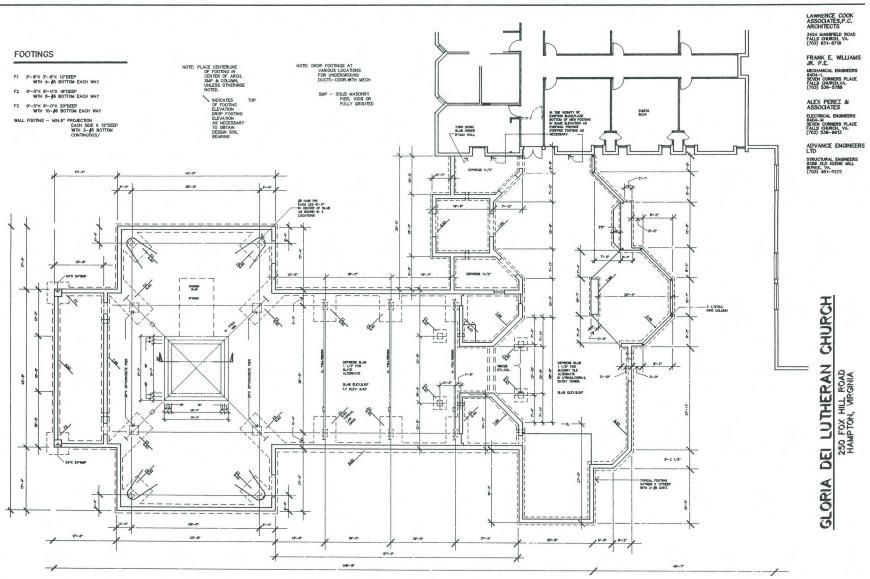
As with the introduction of computer technology into almost any field, the more rote skills involved in architecture are systemized by DataCAD. A mastery of DataCAD truly minimizes the amount of time spent in actual production, so achieving this degree of control was the objective in our office when we started up the program.

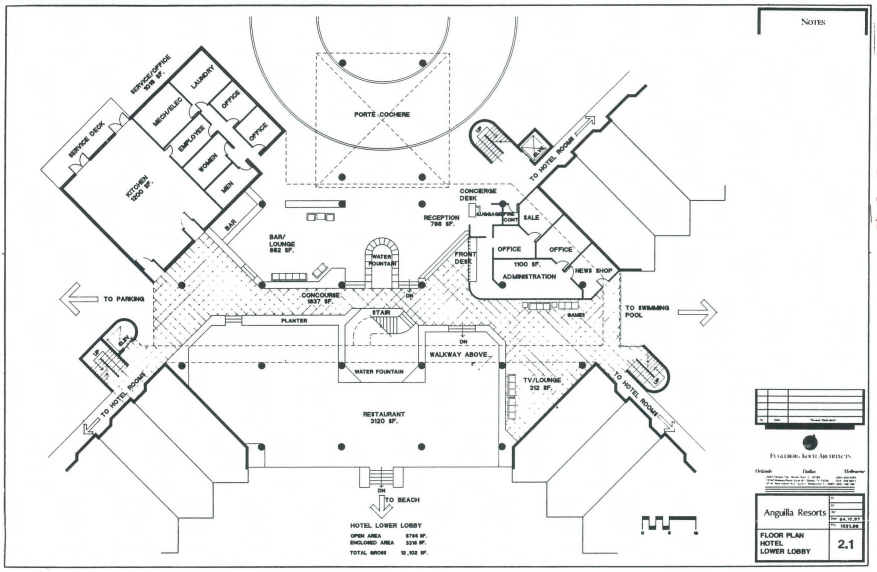
Basically we jumped right in and committed ourselves to the production of a complete set of construction documents on the DataCAD system.

Thus we established a degree of expertise by forcing an exploration of the full range of DataCAD capabilities, rather than using timid and limited practice sessions. In addition, we take the same approach in training new operators. After only a few hours of introduction we start them on an actual document, because we feel that learning while performing an actual task is much more helpful than experimentation without any specific goal. Our experience has shown new operators can become productive in roughly two weeks.



lawrence cook associates, p.c. architects
3424 Mansfield Road, Falls Church, Virginia 22041 (703) 931-6716





"The versatility of the DataCAD system has exceeded most of our original expectations."

FUGLEBERG KOCH ARCHITECTS

Orlando *Dallas* *Melbourne*

☐ 2555 Temple Trail, Winter Park, FL 32789 (305) 629-0595
☐ 13740 Midway Road, Suite 611, Dallas, TX 75234 (214) 458-6943
☐ 25 W. New Haven Ave., Suite F, Melbourne, FL 32901 (305) 768-7887

Our entry into computer aided design and drafting was undertaken with great care and patience. We established fundamental criteria which we used to evalutate our available alternatives. First, a firm with Fugleberg Koch's diversity of expertise must have a computer system with equally varied capabilities. Second, the selected system must be sufficiently user friendly to make staff training efficient without unduly burdening project budgets or schedules.

DataCAD satisfied these major needs as well as numerous lesser criteria. We installed four stations in August of 1986 using IBM and ITT computers equipped with 20 megabyte hard disks. We have just recently connected each station to a network which serves as our library for active drawings. A tape back-up and floppy disks provide for more permanent file storage.

We began to see evidence of DataCAD's relatively short learning curve almost immediately upon installing the software. Our earliest experimentation with production work on the system involved a resort hotel project containing 2,112 units in 33 buildings. Each building was composed of various combinations of four identical two-story pods, with eight rooms per floor. Our first exercise was the simple task of generating the basic room plan. We then began using DataCAD's more sophisticated commands to create eight unit pods and a typical 32 unit building plan. None of the 33 buildings were the same, but DataCAD allowed us to produce all the variations with minimal effort. On this one project, we experienced substantial time savings over manual techniques within weeks of installing the software.

As we expanded our knowledge of the software, we continued to see substantial gains in productivity on similar projects. We are currently working on a six-story hotel project in central Florida that contains six different room designs. The room plans were generated in one data file to be plotted at 1/4" scale. Once these plans were perfected, they were copied into another file to construct the floor plan. Using structural grid lines for accuracy, it took less than six hours to produce the drawing. The plans, elevations and summary for the schematic design presentation were all created with DataCAD, and are now being modified for use as construction documents. We utilized a public domain Helvetica style text font in presentation drawings with satisfactory results.

DataCAD is not limited to applications strictly as a production tool within our office. Our most interesting experiences have been in developing and refining design studies using DataCAD. The program has proven itself in both 2-D and 3-D applications.

We found DataCAD 3-D functions to be invaluable in recent design studies for a theme hotel project. We conceived an unusual and complex roof configuration which combined 6:12 and 24:12 pitches, however, our two-dimensional elevation drawings made the dramatic design look awkward and badly proportioned. We utilized the 3-D line functions to create 3-D wire frame studies of our original design as well as several variations. We saved the perspective views of each design and presented the series to our client. The perspective views served to confirm our suspicions about the original design drawings and our client concurred. We received his confident approval of our original design because of these 3-D studies. Most significant to us was that the set of accurate studies were generated in just a few hours.

The versatility of the DataCAD System has exceeded most of our original expectations. We now have more than half a dozen staff members using the system on a regular productive basis for an expanding variety of tasks. DataCAD is used for numerous other functions besides producing working drawings. We see new opportunities and new applications all the time and the potentials of the computer in our practice seems to have few limits. ☐

ELEVATION STUDY
WINTER PARK THEME

TED HUNTER, PROJECT DESIGNER
FUGLEBERG KOCH ARCHITECTS
WINTER PARK, FLORIDA

Continued from p. 3

Definitions

The second major section of a form file is the DEFINITION section. It contains definition command lines. A form definition command line consists of up to three parts. The three parts (1, 2, 3 below), must be separated from each other by a space.

1. All lines must begin with an "@" in the first column, immediately followed by a location label.

2. Next comes optional formatting information to position the output within the specified field. The choices are:

/R output lined up with the right edge of the field, this is the default for number and dollar fields.

/L output lined up with the left edge of the field, this is the default for text fields.

/C output centered within the field.

3. The last part consists of any one of the following (A - C):

A. A text string enclosed in single quotes.

B. Either "!", or a SYMBOL number, followed by a period, followed by either "#" or a FIELD number.

— the special character !, can only be used with labels occuring within a repetitive area of the form, i.e., within the area demarked by asterisks in the form SEQUENCE section. This character will be replaced successively in the output with each symbol found in the drawing.

example:
!.1 contents of FIELD one for any symbol in drawing.

—SYMBOL numbers correspond to the order in which the symbols were loaded into the template. When looking at the template they are numbered from left to right, and from top to bottom.

—the special character # will be replaced in the output by the number of occurrances of the symbol in question.

example:
6.# number of occurances of symbol number 6

!.# number of occurances of any symbol. Set successively to each and every symbol in the drawing.

— FIELDS 1-6 are pre-defined, and their names cannot be changed.

FIELDS 7 and above are user definable.

example:
6.19 contents of FIELD 19 of SYMBOL 6

!.19 contents of FIELD 19 of any symbol in the drawing.

—"0" is a special case. When used in place of SYMBOL number, it stands for the NAME of the given FIELD, rather than for the CONTENTS of the FIELD. When used as a FIELD number with SYMBOL O, it stands for FIELD O, which is pre-defined, and contains the string 'Report Title'. Used with any other SYMBOL, it gives an empty string.

examples:
O.O gives the string 'Report Title'

O.1 gives the name of FIELD 1, which is pre-defined as 'Item name'

O.14 gives the name of FIELD 14, which user-defined

2.O gives an empty string

C. An arithmetic expression operators:
+ addition
- subtraction
* multiplication
/ division
()order of evaluation [only with addition and multiplication]
<>sum of cell in repetitive area
[] indicates a constant, e.g., [O.O4] 4% tax

—the first four operators can be used on fields of any single symbol in the repetitive area, but not on combinations of the two.

—These four operators must have a space before and after

—Operations cannot be performed on cells or entities not yet defined in the FORM file.

examples:
@I @G * @H multiply the contents of field 'H', and put the result in field 'I'

@k <@G> add the contents of all the fields labeled 'G', and put the sum in field 'k'

For more examples of how form layout files work, look at the file DCADCOST.FRM, and the other form files supplied with DataCAD.

Continued from p. 3

To use LaserPlotter with DataCAD, just follow these easy steps:

1. In the configuration program, select the HP small (A-C) size plotter.
2. Once in the DataCAD plotter menu set up the proper scale and lay out as you normally do.
3. Select 'ToFile,' and then select plot.
4. When DataCAD has sent everything to the file, exit the program. Follow the instructions in the Laser Plotter manual to send the plot file to the laser printer.

For more information contact:
Insight Development Corporation
1024 Country Club Drive
Moraga, California 94556
(415) 376-9451

Third Party Software

The SPACE Program

The SPACE Program, developed by Graphic Systems, Inc., is a PC-based design decision-making package for architects, interior designers and space planners. With SPACE, designers can offer new or expanded space planning services and interact more effectively with clients. SPACE's newest module, Programming/Report, generates graphic and text space accounting/architectural costing summaries which can be presented to clients, resulting in earlier, more informed decisions about the architectural program.

SPACE's Stacking (elevation) and Blocking (plan) modules rapidly allocate any quantifiable units of space that the user enters. The program produces solutions based upon: the user's program of spaces; preassignment of those spaces; proximity relationships (also known as "affinities") between spaces; and the building (for stacking) or floor (for blocking) envelope. SPACE's Blocking module features bidirectional interfaces to DataCAD, VersaCAD and AutoCAD, enabling users to send floor plans to SPACE as envelopes for allocations and send SPACE-generated results back to the CADD system.

The four integrated modules — Program Data (the central database for all project-related information), Programming/Report, Stacking Allocation anad Blocking Allocation—and choice of PC CADD interface cost $444.95. Fully interactive demonstration diskettes are available for $49.95, deductible from the final cost of the software. Dealer inquiries are welcome.

Facilities Management

Facilities professionals are faced with the job of bringing the high cost of managing facilities and real estate under control. Successful management of facilities represents a substantial dollar savings to an organization. Use of a computer for these functions can help reduce the constant moving of workers (churn rate), improve space utilization, better manage lease holding and improve control of assets.

One such system, which interfaces with DataCAD, is offered by Micro-Vector, Inc. of Armonk, New York.

The software performs Projections, rend and Adjacency Analysis, Stack and Block Plans and Inventories Assets for Facilities Managers, Space Planners and Property Administrators.

For further information, contact:
Micro-Vector, Inc.
One Byram Brook Place
Armonk, New York 10504
(914) 273-8700
Attention: Ron Kramer

C.L. DAVIS CONSULTING ASSOCIATES, LTD.
RURAL DELIVERY # 2, BOX 3600
MIDDLEBURY, VT 05753
(802) 545-2181

CONSULTING
SYSTEMS DESIGN
HARDWARE/SOFTWARE ACQUISITION SUPPORT
SOFTWARE DEVELOPMENT
MICROS, MINIS, & MAINFRAME COMPUTERS

DATACAD
DEALER SUPPORT
END-USER TRAINING AND SUPPORT
CUSTOM TEMPLATE DEVELOPMENT
CUSTOM MACRO DEVELOPMENT

"SERVING CLIENTS THROUGHOUT NEW ENGLAND AND NEW YORK"

Architectural Intelligence
in association with
Microage Computer
announces the opening
of an authorized
DataCAD Training Center
in Memphis, TN
for information call
901-278-6826
or
901-722-8280

A Message from the Chairman of RADIUS:

RADIUS has been active on several fronts the past few months. Group members have been busy developing template files, editing bylaws, and preparing for the upcoming National End Users Group Meeting in Washington, D.C. on the 25th of June.

The template files are one of the primary reasons that RADIUS was formed. We saw in DataCAD's template feature a tremendous opportunity for our offices to share information - generic details, product configurations, forms, symbols., etc. - that would save each of us a great deal of time and effort. Our uniform template system has evolved along with DataCAD, and we will be able to show some of the results of this work at the National End Users Meeting.

Our group, like many other DataCAD user groups that are now forming, is composed of people who are using CADD as a business tool. We have spent several months writing a set of bylaws for RADIUS that will be appropriate to the professional nature of our interest in CADD. We have paid careful attention to issues of membership, the group library, officers, voting and dues. This document is available to any interested user groups.

We are all very excited about The First National DataCAD End Users Meeting in June and the opportunity to work with Microtecture to make it a success. Several of our committee members have written reports describing their work in preparation for the event. The agenda, which follows below, is by Leslie Flowers, our National End Users Meeting Committee Chairperson. Leslie has devoted a great deal of her time to make the meeting reality, and we are sure that her efforts will be rewarded by standing-room-only attendance!

Mark R. Dickey, AIA, Chairman
RADIUS

TEMPLATE TRADING

by John L. Hitch

If you're like me, you bought DataCAD because it was as they said, 'intuitive' and easy to learn. Those details that took hours to produce could be saved as templates and used again and again with just a click of a button. It wasn't long until you decided that your productivity would be increased by sharing template details with your peers. After all, what are a few good details among friends.

Sure enough template creation was intuitive. There it was right on the menu, "TEMPLATE." A click of a button and DataCAD asked us for a template file name or a "New Path." We had been told never to take New Path unless we wanted to end up in deep trouble. I was left with only one choice, create new templates, all in that one directory. This worked fine for a while until it became clear that the dreaded New Path was the key to TEMPLATE and SYMBOL organization. Ah, symbols, a new word and new trouble (and opportunity) lurking on the horizon.

Bear with me; we are getting to the reason I am writing this article. In DataCAD 3.0 and higher, Microtecture, in its infinite wisdom, gave us flexibility and with flexibility comes potential for confusion. Well, this is it, ground zero for template creation. If we screw it up here, it's screwed up forever.

Template files are simple. They are ASCII files (real letters and numbers) which contain first the header "DataCAD Template file version xx.xx" followed by the number of horizontal and vertical template boxes that will be displayed on the screen followed by an asterisk. Each line that follows, contains the name of a symbol. That all seems simple enough until we introduce flexibility. The symbols listed may contain the entire symbol path name starting at the root directory (MTEC for most of you) down to the symbol. The symbol name may be followed by a piping symbol ("|") and a second template symbol name. In that case the first symbol name is displayed on the screen and the second symbol is actually inserted into the drawing. That way, you can display the word "Company LOGO" in that little template window, but draw the complex logo itself on the drawing. That's tricky and important, but the central point of this article is a bit more basic. How do you organize and trade those templates when the file storage method is so flexible (complex)?

All this flexibility has allowed us to put our template file, "*.TPL", in subdirectories of our choice and the symbol files,"*.SYM" in other directories, all nicely organized.

For us to trade symbols, we must at the DOS level, copy the TPL file onto a floppy disk along with the referenced SYM files. Finding the TPL file is usually pretty easy for us because we recognize the name and we know where we put it. The SYM files are not quite so simple. We probably don't know the names we assigned to them or the directories in which they are stored. Printing out the TPL file with the DOS PRINT "xxxxx .TPL" command, we can get a copy of the symbol paths and with a little work we'll have all the TPL and SYM files on that floppy ready for trading. Well, not so fast. Something is lurking on the horizon. Yep, trouble sure enough! Our friend who wanted that nice detail, does he have a suprise coming. Our Trojan disk is about to arrive. He copies the TPL file off onto his customary directory; puts the symbols on his customary symbol directory; runs DataCAD; calls up the template and. . .beep, beep, beep. None of the symbols can be found. That's right—all of the symbols must be stored according to the exact path names listed in the TPL file with EDLIN, or create all the directories, just as I had them on my hard disk, and insert each symbol in the right place. What a chore!

Now you're with me. We have wonderful templates and grand flexibility but unless each office wants exactly the same template data structure, sharing templates is going to be tough. Don't despair. Help is on the way. I have written an automatic template installation program called AUTOTPL version 1.01, which reads the TPL file, and with a few questions to the user, installs the template and all the symbols, making any necessary directories. No more lost symbols!

That's not the end. You should learn never to trust a version 1.01. It is always half thought through. Version 2.0 will handle the entire template trading process. It will read the appropriate template file from your hard disk and copy it onto the floppy disk. As it copies the TPL file it will find all the referenced symbols and put them on the floppy with the associated TPL file. On the other side of the exchange, it can install the Trojan template on your former friend's hard disk just as you had it organized, or install the symbols in a directory of your re-found friend's choice changing all symbol paths in the TPL file to match.

With AUTOTPL we users will have a way to easily trade template files with others. Now it should be both flexible and easy. For those coming to Washington for the first annual DataCAD End Users Conference in June, I will have copies of AUTOTPL available at no cost. It should be the beginning of a sharing that will benefit us all. See you there. □

Agenda
June 25, 1987

4:00 - 5:00 p.m.	Registration/DataCAD 3.5 Demonstration/Displays by RADIUS [Social Gallery (Lobby) of AIA]
5:00 - 5:05 p.m.	Welcome by Mr. Mark Dickey, AIA, Chairman of RADIUS. Introductions of Guest Speakers and Panel
5:05 - 5:20 p.m.	Mr. Stuart Griffin Burgh, AIA, President, Microtecture Corporation "PAST, PRESENT AND FUTURE OF DataCAD"
5:20 - 5:30 p.m.	Mr. William D. Hooper, Jr., AIA, Senior Manager, Professional Systems Division, AIA "ADVENT OF DataCAD AND MASTERSPEC"
5:30 - 5:40 p.m.	Mr. Oliver Witte, Journalist, Contributing Editor to *Architecture*, Professor at Loyola State University "COMPARATIVE EVALUATIONS OF CAD SYSTEMS"
5:40 - 5:55 p.m.	Mr. John L. Hitch, AIA, Managing Partner of McKimmon/Edwards/Hitch, Architects, Raleigh, North Carolina, Director of RADIUS "EVOLUTION OF A USERS GROUP"
5:55 - 6:45 p.m.	Panel Discussion. Members include: Stuart Griffin Burgh, AIA, President, Microtecture Eric V. Smith, V.P. & Director of Software Development,Microtecture John L. Hitch, AIA, Partner, McKimmon/Edwards/Hitch Oliver R. Witte, Journalist/Contributing Editor, *Architecture* Eric Teicholz, President, Graphic Systems Inc., Cambridge, MA, Journalist
6:45 - 6:55 p.m.	Ms. Lou Bodnar, Marketing Communications, Microtecture Award of DataCash prizes Award of Door Prize
6:55 - 7:00 p.m.	Closing Comments, Mr. Mark Dickey
7:00 - 8:30 p.m.	Reception, Cocktails, Third Party Software Demonstrations

For further information on the DataCAD National End User Meeting contact, Lou Bodnar, Microtecture Corporation, at 804/295-2600.

Come see DataCAD at the AIA National Convention, Booth #490 and the A/E/C Systems '87 Show, Booth #367.

MICROTECTURE™
617 West Main Street
Charlottesville, Va. 22901
804-295-2600

BULK RATE
U.S. POSTAGE
PAID
PERMIT NO. 197
CHARLOTTESVILLE, VA

In This Issue

DataCAD 3D System
DataCAD Profile
DCAL•Applications Language

Continued from p. 1

than if we had stayed with stand-alone stations, the benefits have been enormous. First, managing the library is a breeze. Everyone can use the same templates; no longer is there the question of who has the most current version of this or that file. Second, all the stations are interchangeable. Anyone can go to any station and work on any project. Third, adding additional stations is considerably less expensive, because the individual stations do not require hard disks.

All this is not to say that networks do not have their particular problems, because they do. We had to get used to plotting from the network, which involves plotting to files and then leaving DataCAD and instructing the network to send the files to the plotter. After doing this for some time, however, we actually came to perceive this as an advantage; the network does this so handily, and plotting to files takes so much less time than plotting to the plotter. Now work time is much less interrupted by the plotting process.

Another problem cropped up with the release of version 3.0 of DataCAD. Because the program now goes to the disk more, the network began to bog down. The solution to this problem has been to place relatively inexpensive ram disks at the individual workstations, and this is now perceived as an advantage as well. Due to the sophisticated manner in which DataCAD uses paths, the virtual file (the drawing being edited) can be placed on the ram disk and the autosave files can be directed back to the network disk. Because of the disk cacheing process done at the network server (for the program and library files) in tandem with the ram disk operation at the individual workstations (for the drawing files), the CADD stations actually work much faster now than they ever did as stand-alone stations. All in all, there is no question in our minds that networking is the best solution for multiple stations, and two more stations will be added soon.

Over the past two years we have seen quite a change in DataCAD and in GNP. Our bet on Microtecture was that the program would blossom while retaining the superb user interface, and the payoff has been many times what we expected in terms of new features and capabilities. Our bet on ourselves was that we could successfully integrate CADD with the production and design processes. Walking through the office today, and seeing stations on many of the boards, it's easy to feel successful; the real credit, however, goes to DataCAD and that great user interface. □

Continued from p. 2

Three-dimensional shapes available within DataCAD 3D include:

- 3D lines and vectors
- Contour Curves (open and closed)
- Polygons (with or without holes)
- Slabs (with or without holes)
- Skewed Boxes
- 3D Arcs
- Cylinders
- Cones
- Truncated Skewed Cones
- Tori (doughnut shapes)
- Domes (spheres)
- Bezier Surface (general surface mesh)

All of the three-dimensional shapes in DataCAD 3D will respond to three-dimensional editing commands. Objects may be rotated, translated, enlarged, mirrored, and stretched in any orientation and in any order. Objects with circular cross-sections may be edited to have elliptical cross-sections.

Hidden Line Removal

DataCAD 3D HLR is capable of displaying three-dimensional models with all hidden lines removed. Images created with the hidden line removal system may be saved and/or plotted.

The hidden line removal system supports images viewed in all orientations, including orthographic, parallel (including elevation and isometric), perspective, and oblique projections.

Hidden line removal options:

Displaying hidden lines in alternate colors, line types, and attributes.

Images with hidden lines removed may be viewed only, or may be retained on separate layers or in files for later use.

Piercing calculations may be optionally performed on objects which intersect each other.

Options for making ordinary two-dimensional shapes into three-dimensional solids during hidden line removal process.

DataCAD 3D's hidden line removal system is a two pass system for greater speed and accuracy. This system supports models as large as four megabytes. During operation drawing files are not altered in any way.

DataCAD 3D's hidden line removal system:

1. Supports all two and three-dimensional data types except text and automatic dimensioning.
2. Correctly hides shapes which are convex or concave, and handles an unlimited number of holes and voids in surfaces at any orientation. Windows in buildings and holes in objects reveal properly any information behind or beyond. □

ANNOUNCING

MICRO VECTOR INC

The Newest Addition To Its Facilities Planning & Management Software

THE SPACE PLANNER

- PROJECTIONS including Business Graphics
- AFFINITY/ADJACENCY ANALYSIS
- STACK PLANNING
- BLOCK PLANS
- CAD INTERFACES

$1595

- *Trend Analysis*
- *Sessions Modeling*
- *Projection Stack & Block Overlays*
- *Lease Management*
- *Construction Budgeting*
- *External Data Base Interfaces &*
- *Networking*

Also Available

1 Byram Brook Place, Armonk, N.Y. 10504
914-273-8700

Dealer Inquiries Welcome