



Reference Point

Volume 2, Number 2

Technical Resources for **DataCAD**®

Spring, 1992

News

Reference Point & 3-D WORLD

From Frank Simpson:

Readers of *Reference Point* and *3-D WORLD* will notice some changes with the Spring 1992 issues of these publications. Effective with the Spring 1992 issue, *Reference Point* has become Cadkey, Inc.'s corporate newsletter to architectural-engineering and construction-engineering professionals using our **DataCAD**® product family.

Reference Point will now be distributed to all DataCAD users.

Also effective with the Spring 1992 issue, *3-D WORLD* has become Cadkey, Inc.'s corporate newsletter to mechanical-design, engineering, and manufacturing professionals using our **CADKEY**®, **CADKEY**® ANALYSIS, **CADDInspector**™, and **CUTTING EDGE**™ product families.

These changes have come about in response to requests from the end users of our products, and from **DataCAD** and **CADKEY** value-added resellers.

There may be some users of Cadkey, Inc.'s software products who want to receive both *Reference Point* and *3-D WORLD*. This is possible. Any customer using one or more of Cadkey's products, who wants to keep up to date with both *Reference Point* and *3-D WORLD*, must write directly to Frank Simpson, Managing Editor of *Reference Point*, and Editor of *3-D WORLD*, at:

Cadkey, Inc.
4 Griffin Road North
Windsor, Connecticut 06095-1511
Fax: (203) 298-6401
International Fax: (203) 298-6402.

From Philip Hart:

This change in policy should have no adverse effect upon the editorial content of *Reference Point*. Some items previously published in *3-D WORLD* will now appear in these pages. The inclusion of 'DataCAD application' stories, user group listings, etc. should serve to consolidate **DataCAD** materials into single a source of information for the readers of *Reference Point*.

DataCAD/RenderMan Interface

A new (as yet unnamed) product that enables rendering of **DataCAD** 3D models with Pixar's **RenderMan** has been announced. In the final stages of development, it will be available to **DataCAD** users in the near future. Currently, a rendering service based on the product is offered. The software features:

- A DCAL macro which assigns scene, lighting, and surface information.
- Macro generated **RenderMan** .RIB files for post-processing. Direct .DC3 to .RIB conversion avoids DXF polygon limitations.
- Support for multi-sided concave polygons with voids and Phong shading of nonplanar entities.
- An exclusive library of material and surface procedural shaders includes Pixar's Looks Library and custom programmed surfaces.
- Multiple light sources, shadows, reflection maps, TARGA/TIFF texture maps and variable speed/resolution are supported.

For further information, contact:

David Pendery
14 Tremont St.
Cambridge, MA 02139
(617) 661-2545

Editor's note:

DBUG members who have followed the development of this product over the past few years have been very impressed with the images currently being produced.

The product is referred to by them as: PenderMan.

New Design Aid

Architect's Toolkit One, an enhancement to **DataCAD** aimed at both design and production work, has been announced. It is described as a collection of 820 **DataCAD** symbols organized in ten templates. Half of the symbols are regularly used production drawing graphics, the other half are 3D furnishings. For further information, contact:

Gary Gresham
Beacon Design Systems
Box 7116
Paducah, KY 42002-7116
(800) 788-7436



Default Drawings

The flexibility of default drawings and the ability to customize them make them one of the most powerful tools available to the DataCAD user. This article will discuss the process of defining and saving default drawings.

What is a default drawing?

A new drawing file is initiated by typing in a name that does not appear in the list of files accessed at the initial DataCAD screen. One of two things will happen to create that drawing file: Either the new file will be 'empty' and based on DataCAD's internally generated settings, or the new drawing file will be *created as a copy of an existing .DC3 file*. In this second case, the drawing file upon which the new one is based is the **default drawing**.

The process of beginning a new drawing file does not modify the default drawing upon which it is based. Neither does later modification of the default drawing have any effect upon any drawing files which were based on it.

DataCAD generated settings

On a newly installed system or one which has not been configured to utilize default drawings, DataCAD initiates the drawing file internally; the software looks only to itself to establish the menu settings and data content (none) of the new file. A drawing file based on the internally generated parameters has some distinct characteristics:

- It is the smallest .DC3 file possible.
- It is the 'cleanest' .DC3 file possible.
- It is the .DC3 file least reflective of the user's specific needs.

The first two qualities (smallest and cleanest) lend themselves to two situations. First, when a drawing file crashes or misbehaves in one way or another, loading layers from the problem file into a new .DC3 file based on the DataCAD defaults will help eliminate possible sources of the problem. Second, the small and clean characteristics are ideal for use in the process of creating more sophisticated, user-defined default drawing files.

The drawing file generated by DataCAD's internal parameters begins with 'generic' menu settings - ones which the user needs to modify to reflect his/her own use of the software. By creating default drawings with these settings established, all drawing files based on them will start with the desired settings.

The 'default' default drawing

The particular .DC3 file copied to start a new drawing file is the one specified by the user in DataCAD's CONFIG under 'Default drawing file name'. It must reside in the subdirectory specified for default drawings in the PATH NAMES menu in CONFIG. When these conditions are not met, DataCAD generates a new drawing file based on internal parameters rather than as a copy of a default drawing.

Any .DC3 file can be a default drawing. In fact, any number of drawing files, with specific menu settings and data content, may be created for use in particular situations. They should be saved to the subdirectory specified for default drawings in the PATH NAMES menu in CONFIG.

Normally, new drawing files will be initialized as copies of the 'default' default drawing; this may be overridden so that a different default drawing is used. Do this by selecting DEFAULT (S9) at the initial DataCAD screen and then selecting the .DC3 file to use from the list of files displayed. Exit from this and type in a new drawing file name at the initial screen. A new file is started based on the selected default drawing. This override of the 'default' default drawing does not change the setting in CONFIG. The next time a new drawing file is started, it will be based on the 'default' default drawing.

Default drawings: a 3-tiered approach

In day-to-day use, a three-tiered approach to default drawings has proven successful. At the most basic level, the internally generated DataCAD defaults serve a useful purpose, as described above.

At the second level, a user-defined *primary default drawing* should be created, modifying the DataCAD default settings and reflecting the preferences of the individual user.

Finally, based on the second level default drawing file, scale, job, or task-specific default drawing files should be generated.

The enclosed default drawing form (on pages 4, 5, 6, & 7) is meant to be photocopied by the user, providing a means of documenting the settings established in various default drawings. The form includes the DataCAD default settings. Note that the form covers only the menus in the 2D portion of the software. In a future issue, a similar form covering the 3D menus will be provided.

A new drawing based on DataCAD's internal settings may be generated in a number of ways:

1. The line in DataCAD's CONFIG for DEFAULT DRAWING NAME can be left blank or

2. The line in DataCAD's CONFIG for DEFAULT DRAWING NAME can specify a drawing file name which does not appear in the subdirectory specified as the path for default drawings or

3. The user, at the initial DataCAD screen can select DEFAULT (S9) and at the screen listing files in the default drawing directory, type in a name that does not appear in the list. Upon pressing the ENTER key, the user is returned to the initial DataCAD screen. At this point, typing in a name for the drawing file to enter (one that does not appear in the active subdirectory) generates a new file based on the internal default settings.



The primary default drawing

It is recommended that the user create a primary default drawing file (hereafter referred to as USER.DC3). This is perhaps the single most important drawing file that the user will ever create. It has two uses:

First, it serves as a *general-purpose default drawing file*, the one upon which (normally) any new drawing file will be based. Many times, the user needs to create a chart, a coversheet, or some other graphic which has no inherent scale. By basing a new drawing file upon a default drawing with which he/she is intimately familiar, the work may be performed quickly. Knowledge, for instance, of the relationship between sizes of entities and text for the preset plot scale of the drawing leads to efficiency in drawing.

Second, it is the basis for more highly customized plot scale, job, and task-specific default drawings.

USER.DC3 should have only one layer, containing no (or only minimal) graphical information. It should have menu parameters set to the user's preferences. It should be based upon the DataCAD defaults when first created so that it starts in a 'smallest and cleanest' condition.

Creating user.dc3

The following is a suggested procedure for the creation of USER.DC3

- Enter CONFIG and specify 'USER.DC3' for 'Default drawing name.'
- At the DOS prompt, verify that USER.DC3 is *not* the name of a file in the subdirectory specified in CONFIG for the path to default drawings.
- Enter DataCAD, and at the initial screen, select NEW PATH (S8). Select the path specified in CONFIG for default drawings.
- Type 'user' and press ENTER.

The drawing file that has been now initialized will have been generated internally by DataCAD and will have the DataCAD default settings.

- The menu settings should be modified to reflect the user's preferences. *See the following discussion headed 'Preferences.'*
- Exit the drawing file, saving it normally. The file will be saved to the path specified for default drawings as USER.DC3.

DataCAD will now copy USER.DC3 as the basis for new drawing files unless otherwise specified.

The user may continue to refine USER.DC3 by treating it as a normal drawing file. It can be accessed by selecting NEW PATH (S8) at the initial screen, specifying the default drawing subdirectory, and choosing USER.DC3 from the menu listing of available drawing files. Saving it to this subdirectory (and continuing to specify USER.DC3 as the 'Default drawing name' in CONFIG) will result in future new drawing files being based upon the latest version of USER.DC3.

Once refined to the user's preferences, the settings in USER.DC3 become the norm for operating DataCAD. The user will know without having to check menus the status of important variables such as INSERTION MODE, OBJ SNAP settings, TEXT size and font, PLOTTER scale and sheet size, etc. Many of these variables are ones that should remain constants for 90% of the user's work in DataCAD.

The third tier

Additional default drawings, based on USER.DC3, should contain modifications to the settings and/or include graphic information that tailor them to scale, task, or job-specific requirements.

To create a 'third-tier' default drawing, based upon USER.DC3, select New Path (S8) at the initial screen and change to the default drawing subdirectory. Entering a name that does not appear on the list of available drawing files initiates a new file based on USER.DC3 as the default drawing. When work on this file is complete, it is saved to the default drawing subdirectory.

Typically, the user might want to make versions of USER.DC3 modified for specific plot scales. He/she might make ones that are specific to a particular drawing type, 1/8" floor plans, for instance. This type of default drawing might include named layers with color assignments preset.

A default drawing for a typically used sheet in a production drawing set might be made. Room finish and door schedules are a good example. They would include all of the graphic information for the schedules, their headings, etc. A new file based on it would need only to have the schedules modified to reflect the number of rooms and doors in the project and have the schedules filled in.

The content and use of third-tier default drawings is limitless; their use is a major source of efficiency.



Drawing file name: _____ .DC3

Located in path: _____

Use for: _____

Notes: _____

| MENU COMMAND/ PARAMETER | PARAMETER | DATA CAD DEFAULT | USER DEFAULT |
|----------------------------|-----------|---------------------|-----------------|
| MOVE | | | |
| ANDCOPY | ON/OFF | OFF | |
| ROTATE | | | |
| ANDCOPY | ON/OFF | OFF | |
| MIRROR | | | |
| FIXTEXT | ON/OFF | ON | |
| ANDCOPY | ON/OFF | OFF | |
| STRETCH | | | |
| POINT | OPTION | (BOX) | |
| BOX | OPTION | SELECTED | |
| FENCE | OPTION | (BOX) | |
| ENLARGE | | | |
| ANDCOPY | ON/OFF | OFF | |
| CLEANUP | | | |
| FILLETS | | | |
| RADIUS | VALUE | 0 | |
| CLIP | ON/OFF | ON | |
| CHAMFER | | | |
| DISTANCES | VALUE | 1' x 1' | |
| CLIP | ON/OFF | ON | |
| EDITSETS | | | |
| APPEND | ON/OFF | OFF | |
| SETACTIV | SELECT | NONE | |
| ARCHITCT | | | |
| WALLS | ON/OFF | OFF | |
| SIDES | OPTION | (CENTERS) | |
| CENTERS | OPTION | SELECTED | |
| CLEAN | ON/OFF | OFF | |
| CAP | ON/OFF | OFF | |
| HILITE | ON/OFF | OFF | |
| INSIDE | OPTION | (OUTSIDE) | |
| OUTSIDE | OPTION | SELECTED | |
| COLOR | COLOR | WHITE | |
| WIDTH | VALUE | 2 | |
| WIDTH | VALUE | 4" | |
| DOORSWNG | | | |
| DRWJAMB | ON/OFF | ON | |
| SIDES | ON/OFF | ON | |
| CNTRPNT | ON/OFF | ON | |
| CUTOUT | ON/OFF | ON | |
| IN WALL | ON/OFF | ON | |
| LYRSRCH | ON/OFF | OFF | |
| JAMBWIDTH | VALUE | 1" | |
| ANGLE | VALUE | 90° | |
| THICKNSS | VALUE | 1 1/2" | |
| HEADHGT | VALUE | 6'-8" | |

| MENU COMMAND/ PARAMETER | PARAMETER | DATA CAD DEFAULT | USER DEFAULT |
|----------------------------|-----------|---------------------|-----------------|
| ARCHITCT CONT. | | | |
| SINGLE | OPTION | SELECTED | |
| DOUBLE | OPTION | (SINGLE) | |
| BIFOLD | OPTION | (SINGLE) | |
| SLIDING | OPTION | (SINGLE) | |
| WINDOWS | | | |
| DRWJAMB | ON/OFF | ON | |
| SIDES | ON/OFF | ON | |
| CNTRPNT | ON/OFF | ON | |
| CUTOUT | ON/OFF | ON | |
| IN WALL | ON/OFF | ON | |
| LYRSRCH | ON/OFF | OFF | |
| JAMBWIDTH | VALUE | 1" | |
| OUT SILL | VALUE | 2" | |
| IN SILL | VALUE | 1" | |
| GLASSTHCK | VALUE | 3/4" | |
| SILLHGT | VALUE | 3' - 4" | |
| HEADHGT | VALUE | 6' - 8" | |
| POLYGONS | | | |
| NO. SIDES | VALUE | 4 | |
| DYNAMIC | ON/OFF | ON | |
| CNTRPNT | ON/OFF | ON | |
| VERTEX | ON/OFF | ON | |
| DIAMETR | ON/OFF | ON | |
| INSCRIB | ON/OFF | ON | |
| RECTNGL | ON/OFF | OFF | |
| CNTRPNT | ON/OFF | ON | |
| TEXT | | | |
| SIZE | VALUE | 3" | |
| ANGLE | VALUE | 0° | |
| WEIGHT | VALUE | 1 | |
| SLANT | VALUE | 1 | |
| ASPECT | VALUE | 1.0 | |
| FACTOR | VALUE | 1.0 | |
| FONTNAME | VALUE | * | |
| DYNAMIC | ON/OFF | ON | |
| TXTSCAL | ON/OFF | OFF | |
| ARROWS | | | |
| SIZE | VALUE | 0.5 | |
| STYLE | | | |
| OPEN | OPTION | SELECTED | |
| CLOSED | OPTION | (OPEN) | |
| BRIDGE | OPTION | (OPEN) | |
| ASPECT | VALUE | 3.0 | |
| LEFT | OPTION | SELECTED | |
| CENTER | OPTION | (LEFT) | |
| RIGHT | OPTION | (LEFT) | |

* DEFAULT IN CONFIG



| MENU COMMAND/ PARAMETER | PARAMETER | DATA CAD DEFAULT | USER DEFAULT |
|----------------------------|-----------|---------------------|-----------------|
| DIMENSION | | | |
| HORIZNT | OPTION | (ALIGNED) | |
| VERTICL | OPTION | (ALIGNED) | |
| ALIGNED | OPTION | SELECTED | |
| ROTATED | OPTION | (ALIGNED) | |
| ANGLE | VALUE | 0° | |
| ASSOC | ON/OFF | ON | |
| TEXTSTYL | | | |
| TEXTSIZE | VALUE | 3" | |
| WEIGHT | VALUE | 1 | |
| SLANT | VALUE | 1 | |
| ASPECT | VALUE | 1.0 | |
| INHORIZ | ON/OFF | OFF | |
| OUTHORIZ | ON/OFF | OFF | |
| ABOVE | ON/OFF | ON | |
| OFFSET | VALUE | 3" | |
| AUTO | ON/OFF | ON | |
| COLOR | COLOR | WHITE | |
| FONTNAME | VALUE | * | |
| DIM STYL | | | |
| LINE1 | ON/OFF | ON | |
| LINE2 | ON/OFF | ON | |
| OFFSET | VALUE | 6" | |
| OVERLAP | VALUE | 3" | |
| INCRMENT | VALUE | 2" | |
| OVERRUN | VALUE | 0" | |
| FIXDIST | ON/OFF | ON | |
| LIMITS | ON**/OFF | OFF | |
| TOLRANCE | ON**/OFF | OFF | |
| ARROSTYL | | | |
| ARROWS | OPTION | SELECTED | |
| SIZE | VALUE | 0.5 | |
| ASPECT | VALUE | 3.0 | |
| TICMKS | OPTION | (ARROWS) | |
| SIZE | VALUE | 0.5 | |
| WEIGHT | VALUE | 3 | |
| DOTS | OPTION | (ARROWS) | |
| SIZE | VALUE | 0.5 | |
| COLOR | COLOR | WHITE | |
| AUTOSTYL | | | |
| BASELIN | OPTION | (STRINGLI) | |
| STRINGLI | OPTION | SELECTED | |
| PTSONLY | ON/OFF | OFF | |
| NOPTS | ON/OFF | OFF | |
| MIN DIST | VALUE | 0.0 | |
| MISSDIST | VALUE | 0.0 | |
| LYRSRCH | ON/OFF | OFF | |

| MENU COMMAND/ PARAMETER | PARAMETER | DATA CAD DEFAULT | USER DEFAULT |
|--|-----------|---------------------|-----------------|
| SETTINGS | | | |
| SCALTYPE | | | |
| ARCH | OPTION | (SELECTED) | |
| ENGR | OPTION | (ARCH) | |
| DECIMAL | OPTION | (ARCH) | |
| INCHFRC | OPTION | (ARCH) | |
| INCHDEC | OPTION | (ARCH) | |
| METRIC | OPTION | (ARCH) | |
| METERS | OPTION | (ARCH) | |
| CENTMTR | OPTION | (ARCH) | |
| MILLMTR | OPTION | (ARCH) | |
| UNITS | ON/OFF | ON | |
| ANGLETYPE | | | |
| NORMAL | OPTION | SELECTED | |
| BEARING | OPTION | (NORMAL) | |
| DEC DEG | OPTION | (NORMAL) | |
| RADIAN | OPTION | (NORMAL) | |
| GRADS | OPTION | (NORMAL) | |
| COMPASS | OPTION | (NORMAL) | |
| EDITDEFS | | | |
| SCALES | FILE | DCAD.SCL | |
| ANGLES | FILE | DCAD.ANG | |
| DISTNCES | FILE | DCAD.DIS | |
| MISSDIST | VALUE | 10 PIXELS | |
| SMALGRID | VALUE | 20 PIXELS | |
| SCRLDIST | VALUE | 20% | |
| DISTDLAY | VALUE | 3 | |
| SAVEDLAY | VALUE | 5 MINS. | |
| DRWMRKS | ON/OFF | OFF | |
| BEEPS | ON/OFF | ON | |
| BIG CURS | OPTION | (SMCURS) | |
| SMALCURS | OPTION | SELECTED | |
| SIZE | VALUE | 15 PIXELS | |
| NEGDIST | ON/OFF | OFF | |
| SHOW Z | ON/OFF | OFF | |
| FIXDREF | ON/OFF | OFF | |
| DISSYNC | ON/OFF | OFF | |
| TXTSCAL | ON/OFF | OFF | |
| Z SETTINGS ('Z' KEYBOARD INTERRUPT) | | | |
| Z BASE | VALUE | 0' - 0" | |
| Z HEIGHT | VALUE | 8' - 0" | |
| INSERTION MODE ('INS' KEY) | | | |
| REL. POLAR | OPTION | SELECTED | |
| ABS. POLAR | OPTION | (REL. POL.) | |
| REL. CART. | OPTION | (REL. POL.) | |
| ABS. CART. | OPTION | (REL. POL.) | |

* DEFAULT IN CONFIG ** ENTER VALUE IF ON



| MENU COMMAND/ PARAMETER | PARAMETER | DATA CAD DEFAULT | USER DEFAULT |
|-------------------------------|-----------|------------------------|-----------------|
| GRIDS | | | |
| SNAP ON | ON/OFF | ON | |
| DISP1ON | ON/OFF | ON | |
| DISP2ON | ON/OFF | ON | |
| GRIDSIZ | | | |
| SETSNAP | VALUE | 4" x 4" | |
| SETDISP1 | VALUE | 4' x 4' | |
| SETDISP2 | VALUE | 16' x 16' | |
| GRIDCOLOR | | | |
| SETDISP1 | COLOR | LT. RED | |
| SETDISP2 | COLOR | LT. BLUE | |
| MRKSIZ | VALUE | 1 PIXEL | |
| SNAP ANG | VALUE | 8 (45°) | |
| ANGLE | VALUE | 0° | |
| GRID ORIG | POINT | USER DEF. | |
| DISPLAY | | | |
| SHOWTXT | ON/OFF | ON | |
| SHOWDIM | ON/OFF | ON | |
| SHOWHTCH | ON/OFF | ON | |
| SHOWWGT | ON/OFF | ON | |
| USERLIN | ON/OFF | ON | |
| OVERSHT | ON/OFF | OFF | |
| SHOWINS | ON/OFF | ON | |
| SHOWATRS | ON/OFF | ON | |
| CRVCTRS | ON/OFF | OFF | |
| DIMPTS | ON/OFF | OFF | |
| SMALLTXT | VALUE | 3 PIXELS | |
| BOXCOLOR | COLOR | 'NO CHANGE' | |
| SMALLSYM | VALUE | 3 PIXELS | |
| ARCFACR | VALUE | 1.0 | |
| LAYRDRR | | | |
| FIRST | OPTION | SELECTED | |
| LAST | OPTION | (FIRST) | |
| INORDER | OPTION | (FIRST) | |
| DISPLIST | | | |
| RGNWARN | ON/OFF | ON | |
| WNSIZE | VALUE | 1 | |
| LINE TYPE | | | |
| LINE TYPE | TYPE | SOLID | |
| FACTOR | VALUE | 1.0 | |
| LINEWGT | VALUE | 1 | |
| COLOR | COLOR | WHITE | |
| SPACING | VALUE | 1'-0" | |
| OVERSHT | VALUE | 0 | |

| MENU COMMAND/ PARAMETER | PARAMETER | DATA CAD DEFAULT | USER DEFAULT |
|-------------------------------|-----------|------------------------|-----------------|
| OBJ SNAP | | | |
| NEAREST | ON/OFF | OFF | |
| END PNT | ON/OFF | ON | |
| MID PNT | ON/OFF | OFF | |
| N PNTS | ON/OFF | OFF | |
| CENTER | ON/OFF | OFF | |
| QUADRNT | ON/OFF | OFF | |
| INTSECT | ON/OFF | OFF | |
| PERPEND | ON/OFF | OFF | |
| TANGENT | ON/OFF | OFF | |
| FAST SYM | ON/OFF | ON | |
| FAST3D | ON/OFF | ON | |
| MISSDIST | VALUE | 10 PIXELS | |
| LYRSNAP | ON/OFF | OFF | |
| SRCHHCH | ON/OFF | OFF | |
| QUICK | ON/OFF | OFF | |
| SELSET | ON/OFF | OFF | |
| APERTUR | ON/OFF | OFF | |
| PLOTTER | | | |
| SCALE | VALUE | 1/4" | |
| PAPERSIZ | VALUE | 24 x 26 D | |
| CUSTOM | VALUE | 30 x 42 | |
| PENSPEED | VALUE | 0 | |
| PENWIDTH | VALUE | 5 | |
| LAYOUT | POINT | USER DEF. | |
| LYOUTSET | | | |
| SIZE | VALUE | 50% | |
| DIVISIONS | VALUE | 2 x 2 | |
| EXTENTS | ON/OFF | OFF | |
| ROTATE | ON/OFF | OFF | |
| ANGLE | VALUE | 90° | |
| CLR PLOT | ON/OFF | ON | |
| SNGLPEN | ON/OFF | OFF | |
| PEN SORT | ON/OFF | ON | |
| SETPENS | COLOR | ALL PEN 1 SEE NEXT | |

| COLOR/PEN ASSIGNMENT | | | |
|-----------------------------|--|----------|-------------|
| WHITE | | MAGENTA | LT. GREEN |
| RED | | BROWN | LT. BLUE |
| GREEN | | LT. GRAY | LT. CYAN |
| BLUE | | DK. GRAY | LT. MAGENTA |
| CYAN | | LT. RED | YELLOW |



Layers

| LAYER # | LAYER NAME | NOTES/COMMENTS | ✓ IF SNAP GRID | SNAP GRID SIZE | TOGGLED BY 2D VIEW #/NAME 3D VIEW #/NAME |
|---------|------------|----------------|----------------|----------------|--|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |

GoToView/3D Saved Views

| VIEW NUMBER | VIEW NAME | NOTES/COMMENTS | ✓ IF LAYER SET |
|-------------|-----------|----------------|----------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Note:
 Much of the work in developing the Default Drawing Form on these pages is based on a similar form that I created for an article in WindowIn on DataCAD at the point of version 4.0's release. That form, in turn, was based on previous work by Chris Davis. Many thanks to Chris.



Preferences

Every user of DataCAD has developed his/her own preferences, or *style*, for working within the software. Anyone who has had the opportunity to operate another user's system will be familiar with the effect on the 'look and feel' of DataCAD when run with a different group of menu settings.

I hope that a presentation of the settings in my own USER.DC3, and the reasoning behind their choice, will stimulate thought on the part of the reader as to his/her own preferences. I also hope that some response (disagreement?) from other users is stimulated. I welcome the opportunity to publish differing approaches; the more broadly information is shared about the ways that we utilize DataCAD, the more we all benefit.

I set the Insertion Mode to RELATIVE CARTESIAN and turn off the DISPLAY and SNAP GRIDS. This combination reduces the visual clutter of the grids and, combined with keyboard entry (SPACE BAR) of distances, enables accurate placement of entities.

I do use the SNAP GRID to facilitate the alignment of text when working on drawings. It is especially useful to define a custom size grid to coordinate with the graphical information for a schedule.

In the Settings menu, I turn off BEEPS and DRAW MARKS; they provide too much sensory clutter. I use the BIG CURSOR, as it aids in selection by area and in operations requiring rough alignment of entities. I turn on the display of NEGATIVE DISTANCE and Z BASE and HEIGHT values; these provide useful information 'at a glance.' I turn on DISTANCE SYNCHRONIZATION.

I set the SCROLL DISTANCE to 90% as this provides for a sizeable scroll (anything less could be done with the HOME key) that maintains some reference to the 'scrolled from' view.

I set the SAVE DELAY to 30 minutes, which seems to be a good compromise between safety and the inconvenience of the interruption. *It does seem, though, that if a computer is going to crash, it always does so in the last instant before work is saved.*

In the OBJECT SNAP menu, I turn on selection by END PNT, MID PNT, INTERSECT, and PERPEND. These settings most closely approximate the drawing techniques that I first learned for manual drafting. I never use NEAREST OR QUICK, as both of these lead to unpredictable snapping. I toggle FAST SYMBOL and FAST 3D on. I leave LAYER SNAP off, using a keyboard macro, described in the last issue, to toggle this important function 'on the fly.'

I set various parameters in the TEXT, PLOTTER, and DIMENSION menus to correspond to output at 1/8" scale. This is the scale that I use the most in production drawings - for plans and exterior elevations. When I need to generate a drawing that has no scale (cover sheet, schedule, chart, etc.), using 1/8" scale settings provides me with an intuitive knowledge of the relationship between 'real world' and 'as plotted' sizes.

I set SPACING, under LINTYP, to 9". I find that, in most situations, my second most used line type (after SOLID) is DASHED and that, for any plot scale, the best spacing value for dashed lines is equal in size to that of my text notes (9" at 1/8" plot scale, for example). When I need to draw a dashed line, I do not usually toggle (Q,q) to it. I draw a solid line, then use CHANGE to modify it. I have to select only the line type option in CHANGE, the spacing will be 9". Of course, when drawing lots of dashed lines, I toggle to it and the spacing will have been pre-set.

In the first (and only) layer, I place a drawing sheet border for an E size sheet at 1/8" scale. The border graphics are placed such that the center of the sheet is at the Absolute 0,0 point.

In the PLOTTER menu, I set the sheet size to CUSTOM (30" x 42") and set the plot layout by snapping to the center point of the drawing sheet border. Pen assignments are set to the office standard. These settings are thereby established for *all drawing files* as all other default drawings are based on this one.

I turn on ORTHO MODE. I turn off LAYER SEARCH in one of the editing menus, and change the selection method from GROUP to ENTITY. I make this last change because I almost never use GROUP selection and do not want to accidentally perform my first editing operation in a new file by group.

When working on 286 and 386 machines configured with the software display list, I set SMALL TEXT and SMALL SYMBOL to 0 pixels, turn off SHOW WEIGHT, and set the ARC FACTOR to 4. I turn on the REGEN WARNING and set WINDOW SIZE to 1.

When working on a 486-33 with 8 megabytes of RAM, I do not use the display list. I find that screen refreshes without the software display list are only slightly slower than with it. I am willing to put up with that as a trade-off against the limitations of the display list. In this non-display list configuration, I set SMALL TEXT and SMALL SYMBOL to 6 pixels (I run at 1024 x 768 on a 16" monitor, so this seems about right) and turn SHOW WEIGHT on.

Third Tier Default Drawings:

One modification that I frequently make to default drawings is to load custom scale and distances files. Particularly in default drawings used as the basis for production drawing details, I load a custom scale file that includes values for 2:1 and 3:1 scales. These facilitate work by allowing screen views at scales further 'zoomed in' than provided for at 12" = 1'-0". Sets of custom distances also facilitate quick entry of distances that I commonly use in details (5/8", 3/8", etc.) that would otherwise require a number of key-strokes for entry.

A Curved Wall in 3D

Constructing a curved wall in 3D need not be a daunting process. The following article outlines a simple method for accomplishing this.

The 2D base

It is first necessary to define the wall that is to be constructed. Figure 1 illustrates a schematic wall section with the Z heights of its elements noted. The wall thickness is 1' - 0". Note that it is not necessary to draw this diagram; the user, however, must know these values.

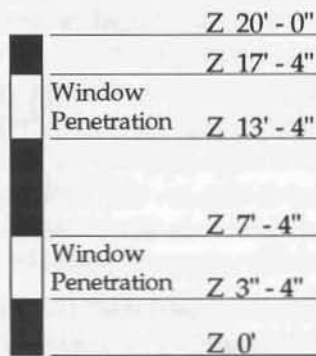


Figure 1

Next, a 2D base for the drawing is constructed. It should be in its own layer and, for the sake of clarity in later viewing the model, it should be drawn with the Z base and Z height set at 0.

In Figure 2, the wall lines are drawn in plan. The DIVIDE menu under GEOMETRY was used to place snapping points along the arcs. In DIVIDE, the divisions were set to 10 and the arcs were selected by entity. Depending upon the number of divisions selected, the final image of the model will plot with a greater or lesser degree of smoothness. The number of divisions set by the user should be chosen with the final 'product' in mind.

Note that, for purposes of illustration, the base drawing is shown drawn with dashed lines; the user would construct them with solid lines, using color and layer controls to distinguish them from the 3D elements that will be created.

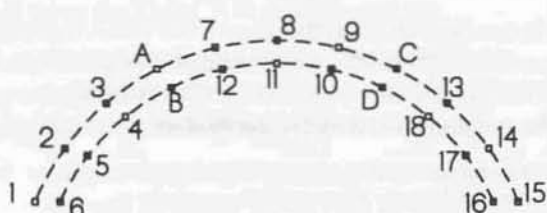


Figure 2

The 3D entities

In a second layer, with a different color, the 2D base is traced to create the wall. With this second layer active, enter the DCAD3D menu, and use the key board interrupt (Z,z) to set the Z base to 0 and Z height to 20' - 0". Enter the 3DENTITY menu, select SLAB, HORIZNTL, and choose BAS/HGT as the construction method. Use the middle mouse button to snap to the points in the 2D base labelled 1-6 in Figure 2, closing the slab after selecting point 6 by pressing the right mouse button. Repeat the process to create slabs at points 7 - 12 and 13 - 18. Figure 3 illustrates a view of the progress to this point; the hidden lines have not been removed.

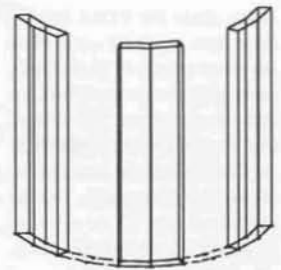


Figure 3

Next, a series of horizontal slabs are created to define the walls above and below the window penetrations. Reset the Z base and height to 0 and 3' - 4", respectively (Z,z interrupt). Use the same menus as described above to create a horizontal slab at points 3, A, 7, 12, B, and 4. Repeat at points 9, C, 13, 18, D, and 10. Figure 4 illustrates the result.

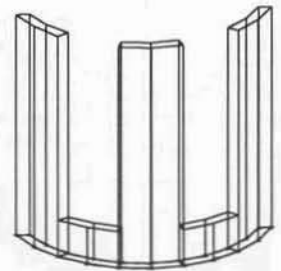


Figure 4

There are two ways to create the additional slabs required to complete the model. The two last-created slabs may be copied (using 3D COPY) the correct Z distances and stretched (3D STRETCH) to fit. The user would switch to an ELEVATION view to perform these operations. Alternately, the slabs can be traced in ORTHO view (as above) with the Z base and height reset to the correct values. In either case, Figure 5 illustrates the completed model.

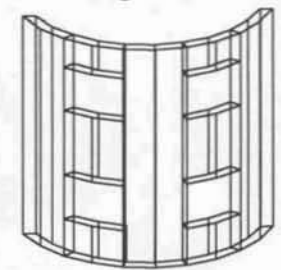


Figure 5

Figure 6 illustrates the completed model after the hidden line process has been performed on it, and the resulting image has been cleaned-up.

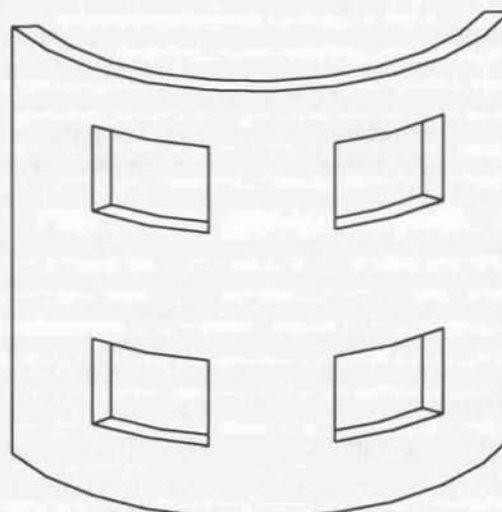


Figure 6

Note:

In preparing this article, various approaches to creating 3D walls were discussed with DataCAD staff at Cadkey. Each person had his/her own favored method. Each method was claimed to be the best one.

If this is any reflection of the variety of techniques used by USERS, then there are any number of methods being employed. I welcome the opportunity to publish YOUR favored method.

P.H.



Note: Since the VESA drivers have been available only since the latest release of DataCAD, users of earlier versions will not have received them. The drivers and vesachk.exe are available on the Cadkey bulletin board in the DataCAD files section. See the sidebar on page 12 for more information on the bulletin board.

TECH SUPPORT

Vesa Drivers

Tech support has received a number of inquiries about the use of Cadkey's VESA drivers with DataCAD and Velocity. These drivers enable 'super VGA' resolution (up to 1280 x 1024 with 256 colors) for many graphics cards. They were first made available with the release of DataCAD 4.06.

What is VESA? The Video Electronics Standards Association is an industry association that was formed with the purpose of establishing a set of standards for video card and software vendors. By establishing an industry standard for super VGA to which participants adhere, software vendors can write only one driver that serves for many graphics cards. Similarly, graphics cards manufacturers can make their cards VESA-compliant to meet the requirements of a variety of software applications.

The following discussion is based on experience with the Diamond SpeedStar[®] card, its vendor supplied utilities, and the Cadkey drivers: VESA256.EXE and VESA16.EXE. Use of the DataCAD drivers with this card is typical for cards complying with the VESA standard.

Configuration of the card for VESA must be accomplished before DataCAD's VESA driver is loaded. Typically, the system will boot up with the card in VGA resolution. The graphics card must be told that an application will address it with a VESA driver *before that application's driver is loaded.*

With the SpeedStar card, this is accomplished by running the Diamond-supplied command file: VMODE.COM. The VMODE command serves two functions. First, it allows the user to fine tune the card to the particular monitor being used, ideally a one-time operation. Second, when the VMODE command is issued in DOS, followed by a parameter, *a particular configuration is specified.* The command VMODE VESA installs a driver in memory that places the card in VESA compliant mode.

DataCAD's VESA drivers are installed in normal fashion to the MTEC\DRV subdirectory. Cadkey supplies an additional file for use with VESA compliant cards: VESACHK.EXE. The user may run this file after initializing the card with the VMODE command to verify VESA compliance.

The DataCAD VESA driver is loaded in the same fashion as other graphics drivers. The command MTEC\DRV\VESA256 loads the 256 color VESA driver.

The other driver, VESA16.EXE, should be used with VESA compliant cards supplied with less than 1024k of video RAM.

To run DataCAD with the VESA driver, then, a typical installation would include the following lines in the batch file(s) that initialize the system for DataCAD (AUTOEXEC.BAT and/or RUNCAD.BAT):

```
C:\STAR\UTIL\VMODE VESA
C:\MTEC\DRV\VESA256
```

Note that on systems utilizing memory managers, both of these statements should be modified to load the drivers to high memory.

Running Velocity with the VESA driver is equally as simple. As with the DataCAD configuration, the VMODE VESA command (or its vendor's equivalent, depending on the particular card) must be issued. And, as in any Velocity configuration, a SET DC_GDT= parameter must be set.

For a VESA-compliant card with 1024k of video RAM for which the user wishes to run Velocity with a screen resolution of 1024 x 768 with 256 colors, the command would be:

```
SET DC_GDT=VESA256,60,3,0,0,1
```

The meaning of the parameters in this command line are described in the Velocity manual on page 2-11. The really important one for the user to control is the one indicating graphics resolution (set to 3 in the above example).

The VESA256 driver may be set to any one of five different resolutions by entering the correct parameter:

| | | |
|---|-------------|------------|
| 0 | 640 x 400 | 256 colors |
| 1 | 640 x 480 | 256 colors |
| 2 | 800 x 600, | 256 colors |
| 3 | 1024 x 768 | 256 colors |
| 4 | 1280 x 1024 | 256 colors |

The VESA16 driver may be set to either of two resolutions:

| | | |
|---|------------|-----------|
| 0 | 800 x 600 | 16 colors |
| 1 | 1024 x 768 | 16 colors |

As can be seen from the above, the VESA drivers, particularly VESA256.EXE, provide to DataCAD and Velocity users a range of flexibility in determining the resolution at which their systems will operate.

In the next issue, one of the new S3-based graphics cards and the DataCAD driver for S3 cards will be examined.



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*Apologies for any errors or omissions in the above.
Corrections and updates will be published as they are
brought to the editor's attention.*



USER INPUT

Some comments from Bruce Kaplan on keyboard macros from a discussion on the B.S.A. B.B.:

I have one philosophy on keyboard macros and that is: go as far into the menu structure as is possible and as is useful, because it is easier to back up one step (right mouse button) than it is to select a function key.

For instance, my One-Line-Trim macro selects trim to an entity because this is my most common editing function. If I need to draw the line, I just push the right mouse button once and then draw the line as prompted.

I have always been annoyed that hitting Alt+S took you only to the 2D Stretch menu. Not much help in 3D. I always wanted a way to use the Stretch (also Mirror) macro to go to the correct menu based on whether I was in 2D or 3D. The solution to this problem is the following:

The Copy (and also Erase and Move) keyboard interrupt will go to the 3D Copy menu when in 3D and to the 2D Copy menu when in 2D. In both 2D and 3D, the Stetch menu is in the F5 position of the menu level (Edit) directly above the Copy menu. So I changed my Stretch keyboard macro to read: S^C^S0^F5. Depending on where you were when you invoked the macro, it will take you to either the 2D or 3D Copy menu, exit to the Edit menu, and select F5, the position for Stretch in either Edit menu.

My Mirror macro is similar (M^C^S0^F4). The same could be done for Enlarge, but I've yet to find a use for Enlarge in 3D.

Thanks Bruce, I've already modified my keyboard macros to incorporate your suggestions. P.H.

Cadkey Bulletin Board:

As of April 20, Cadkey has installed new software for their bulletin board. The first time users log-on after the switch-over, they will need to go through the 'new user' log-on routine.

Log-on information:

(203) 298-6405

8 bits, no parity, 1 stop bit

New Utility:

Cadkey has created a new and very useful DCAL macro utility. 3DANGLE.DCX measures angles in 3D. It is recommended to all users who work in the 3D portion of the software.

The macro has been posted it to the Cadkey bulletin board in the DataCAD section.

In this Issue

The News section covers a change to the distribution of Reference Point and introduces two new products.

Default Drawings covers the topics of DataCAD default settings and their relationship to default drawings. The process of creating, customizing, saving, and using default drawings is discussed. A strategy for the utilization of default drawings is outlined.

A Default Drawing Documentation Form is provided. It covers the 2D portion of the DataCAD menus. In addition to being used to document default drawings, the form may be used for similar documentation of any drawing file.

A Curved Wall in 3D describes a 3D modelling technique. The article draws upon commonly used methods for constructing 3D walls.

Tech Support covers the use of VESA drivers for DataCAD and Velocity.

A DataCAD Users Groups listing is provided.

User Input provides some feedback on Keyboard Macros (discussed in the last issue).

Doing Windows does not appear in this issue. With the release of version 3.1, we are all inundated with media hype, installation tips, etc. The information about 3.1 provided in the computer magazines is comprehensive; no attempt will be made to duplicate it in these pages.

In the last issue, Brian Livingstone's Windows 3 Secrets was discussed. A new edition, Windows 3.1 Secrets, is due to be published May 1, 1992. The more Windows books I see, the more strongly I feel that this is the one to get.

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