Appendix

This appendix contains additional information for advanced users as well as tables defining such things as linetypes, hatch patterns, and keyboard shortcuts

In this chapter:

- ✦ Common error messages and solutions
- ✦ DWG/DXF translator
- ✦ Key file formats for icon toolbars
- ✦ User-defined linetypes
- ✦ Standard hatch patterns
- ✦ Keyboard shortcuts
- ✦ DataCAD fonts
- ✦ Extended characters

Troubleshooting

This section contains some of the common error messages that can occur when you work with DataCAD. The probable cause of each message is given, followed by a description of possible solutions.

Attention! The drawing file 'xxx' is currently marked "In Use". Continuing will result in data loss. Are you sure you want to continue?

Two conditions can cause this error:

1. The drawing file was not exited normally and is still marked "in use".

2. The drawing file is in used by another DataCAD operator on the network. In this case, both operators can make changes to the file and save them, but be aware that Operator A's changes will not appear in Operator B's drawing and vice versa. Therefore, each time the file is saved by Operator A, any changes Operator B made to the file are overwritten, resulting in data loss.

Cannot Open Swap Files

Not enough free disk space. Refer to Windows Help for information on how to free up disk space.

Computer out of memory. Press any key to continue.

Not enough free space on disk. Refer to Windows Help for information on how to free up disk space.

Database does not contain any hideable entities.

No concealable entities found during hidden line removal. Ensure that all layers upon which you want to perform a hidden line removal are on.

DataCAD fatal internal error: xxx

An error occurred within DataCAD which adversely affects your drawing file. Follow procedures for recovering your work using Autosave.

dcadwin.lbl not found. Press any key to continue (occurs during initialization).

1) DCADWIN.LBL missing. Check for the DCADWIN.LBL file in the \SUP directory. 2) Path doesn't exist. Check the path given for support files.

Default Drawing File Incorrect Version.

The default drawing file is not compatible with the latest version of DataCAD. Convert the default drawing file by loading the file into DataCAD and resaving the file.

Entity identified is an unknown data type.

Internal error in recognizing selected entity. Contact DATACAD LLC Technical Support.

Error finding previous void in list.

An internal error has occurred during use of the Void command. The error is recoverable and you may proceed with your work.

File Error 101 (when loading layers into new file)

You are out of hard disk space. Refer to Windows Help for information on how to free up disk space.

File too large or Invalid size

1) File was deleted then undeleted; 2) File was copied from floppy disk or tape and was corrupted, or media is bad. Rename the backup file (*.BAK) to a drawing file (*.DC5)

Incorrect macro file format.

The macro or tool you want to use was created for a different version of DataCAD. Make sure the macro or tool is from the same set of distribution disks as the current version of DataCAD or check with the macro author.

Incorrect layer file version.

The layer file that you want to use is the wrong DataCAD version. Make sure the layer file (*.LYR) is compatible with the current version of DataCAD.

Internal Diagnostic Fault 4 error from 73

Using a converted AutoCAD .DXF file - when adding an area to a selection set and masking by color, the drawing locks up. Get a new copy of the file from supplier.

Internal Diagnostic Fault 9 error from 73

Importing .DXF file from AutoCAD. Get new copy of AutoCAD .DXF file

Internal Diagnostic Fault 10 error from 809 OR Internal Diagnostic Fault 9, 10, or 86 error from 8082

Bad entity(s) on layer(s). Run file through Layer Utility macro, saving layers and loading layers into a new non-default file.

Internal Diagnostic Fault 11 error from 8082

Cannot add entities to drawing file and locks file. Drawing file is too large (20 MB limit). Reduce drawing file size using Layer Utility macro; if Layer Utility doesn't work, layers must be saved using the SaveLyr function in the Layer menu.

Internal Diagnostics Fault 21 error from 8082

Macro or program files have Read-Only attribute. Remove Read-Only attribute from all DataCAD files.

Internal Diagnostic Fault 35 error from 8082

Cannot input symbols into drawing file. Check memory configuration program.

Internal Diagnostic Fault 36 error from 8082

Bad entity(s) on layer(s). Run file through Layer Utility macro, saving layers and loading layers into a new file. Also check available disk space on the drive where DataCAD is installed.

Internal Diagnostic Fault 40 error from 8082

Clip-it macro does not empty the Undo buffer. Open the original file, open the ClipIt macro, exit ClipIt, and save layers using Layer Utility macro. Make sure layers are saved into a new layer filename. Exit current drawing file. Start a new drawing file and load layers into this new file.

Invalid font file format.

Incompatible DataCAD font file. Recompile the *.SHP font file to a *.CHR file format for use with DataCAD.

name.chr not found (where Name is the name of some character set).

1) Designated character set file is missing. Check for the file. 2) Path doesn't exist. Check the path for character set files.

Not enough room to create swap file.

Not enough free space on disk. Refer to Windows Help for information on how to free up disk space.

Stacks Overflow

Hardware (micro processor) problem. Contact hardware manufacturer.

Unable to save back up drawing file.

1) Path doesn't exist. Check the path for drawing files. 2) Not enough free space on disk. Refer to Windows Help for information on how to free up disk space.

Unable to copy file (check disk space).

Not enough free space on disk. Refer to Windows Help for information on how to free up disk space.

Unable to create layer (out of memory).

Not enough free space on disk. Refer to Windows Help for information on how to free up disk space.

Unable to create temporary file (check disk space).

Not enough free space on disk. Delete infrequently used drawing files after copying them to disks.

Unable to create swap file.

Refer to Windows Help for information on how to free up disk space. Also, make sure the directory and file you're in are not marked as Read Only.

Unable to load angle file.

1) DCADWIN.ANG missing. Check for the file. 2) Path doesn't exist. Check the path given for default files.

Unable to load character set.

1) Designated character set file (*.CHR) is missing. Check for the file. 2) Path doesn't exist. Check the path given for the character set files.

Unable to load Character Set ROMAN2

Character set path is incorrect. Change path for character sets to CHR\ in the Preferences/Options dialog box or in the DCAWIN.INI file.

Unable to load decimals file.

1) DCADWIN.DEC missing. Check for the file. 2) Path doesn't exist. Check the path given for the default files.

Unable to load distance file.

1) DCADWIN.DIS missing. Check for the file. 2) Path doesn't exist. Check the path for the default files.

Unable to load scale file.

1) DCADWIN.SCL missing. Check for the file. 2) Path doesn't exist. Check the path for the default files.

Unable to open dcadwin.msg.

1) DCADWIN.MSG missing. Check for the file. 2) Path doesn't exist. Check the path for the support files.

Unable to rename file to backup.

Path doesn't exist. Check the path for the drawing files.

Unable to save file (check disk space).

Not enough free space on disk. Refer to Windows Help for information on how to free up disk space. Also make sure that this directory does not have the archive attribute checked.

Unknown State 7168 Report to DATACAD LLC

Key on keyboard is stuck down. Unstick keyboard key.

DWG/DXF Translator

Importing data from a DWG or DXF file to a DataCAD (.DC5) file is not always a one-to-one translation. There are a few instances where data is handled differently in DataCAD. For instance, entities in AutoCAD with a color-by-block attribute will be read into DataCAD as white.

Dimension arrowheads must also be changed in order to display in DataCAD. AutoCAD arrowheads, which are blocks (symbols), will be replaced *globally* with the arrowhead style set with the ArroStyl option of the Dmension menus. When exported back to a DWG/DXF file, all arrowheads will be set to the AutoCAD default. Dimension text and extension lines will remain the same color, but dimension lines will be changed to the same color as the extension lines.

Text, in some cases, is also treated differently in DataCAD. A single instance of vertical text in a DWG/DXF file will be translated to horizontal text. MText (AutoCAD's multi-line text) is broken into single lines; it is no longer a single entity.

The Importing and Exporting sections that follow provide translation tables showing how entities are treated in "round-trip" scenarios, where a file would begin and end in AutoCAD or DataCAD.

Third-party fonts may need to be scaled to display correctly. To adjust the scale and aspect of a font, open the CHR2SHX.DAT in the \SUP subdirectory of your DataCAD directory, locate the font in the list, and modify the values as necessary. Fonts can also be added to the list; remember to update the total number of fonts in the file (value located on first line of file). Be sure to make necessary adjustments *before* you import or export a file, so that the changes will appear in that file.

Importing

AUTOCAD	DATACAD	AUTOCAD
2D Polyline (parallel to X,Y plane)	Polyline	2D Polyline (rel.13 or 14) Polyline (rel.12)
2D Polyline (not parallel to X,Y plane)	Polyline Symbol‡	2D Polyline (rel.13 or 14) Polyline (rel.12)
2D Polyline (with width assigned to any vertices)	Polyline†	2D Polyline (rel.13 or 14) Polyline (rel.12)
3DFace	Polygon	3DFace

AUTOCAD	DATACAD	AUTOCAD
3D Polyline (with varying Z values)	3D Line	Line
3D Polyline (planar--no varying Z values)	Polyline (parallel to X,Y plane) Polyline Symbol‡	2D Polyline
Arc (parallel to X,Y plane)	Arc	Arc
Arc (not parallel to X,Y plane; thickness= 0)	3D Arc	Arc
Arc (not parallel to X,Y plane; thickness ≠ 0)	Cylinder†	Arc
Attribute Definition	Text† (constant data is saved as attributes; variable data is lost)	Attribute Definition
Block⌘	Symbol	Block
Circle (parallel to X,Y plane)	Circle	Circle
Circle (not parallel to X,Y plane; thickness = 0)	3D Arc†	Circle
Circle (not parallel to X,Y plane; thickness ≠ 0)	Cylinder†	Circle
Dimensions	Associative Dimensions	Dimensions
Dimensions (angular, radius, or diameter dimensions and leaders)	Lines and text	Lines and text
Donut (parallel to X,Y plane)	Polyline†	Donut
Donut (not parallel to X,Y plane)	Polyline Symbol†‡	Donut
Ellipse (parallel to X,Y plane)	Ellipse	Ellipse (rel.13 or 14) Lines (rel.12)
Ellipse (not parallel to X,Y plane)	Ellipse Symbol‡	Ellipse (rel.13 or 14) Lines (rel.12)

AUTOCAD	DATACAD	AUTOCAD
Hatch	Associative Hatch (if hatch boundary is LW polyline) Associative Hatch Symbol‡ (if hatch boundary is LW polyline but not parallel to X,Y plane) Lines (if hatch boundary includes any other boundary type besides LW polyline)	Lines
Leaders	Lines and Text	Lines and Text
Light-Weight Polyline	(See 2D Polyline above)	
Line (parallel to X,Y plane)	Line	Line
Line (not parallel to X,Y plane; thickness = 0)	3D Line	Line
Line (not parallel to X,Y plane; thickness ≠ 0)	Polygon†	Line (if coordinates unchanged) Line, with changed thickness (if polygon stretched along the axis of thickness) Polygon (if coordinates changed in directions other than axis of thickness)
MText	Text	Text
Mesh	Polygons	Polygons
Point (with no thickness)	Point£	Point
Point (with thickness)	3D Line†£	Point
Polyface Mesh	Polygons	Polygons
Spline	Point†	Spline (rel.13 or 14)
Solid	Polygons, triangulated	3D Faces
Text, single line or multi-line	Text	Text

† AutoCAD entity is imported into DataCAD as an entity with attributes. If the entity is edited in DataCAD, upon export it will return to its original (AutoCAD) entity type, incorporating the changes you made in DataCAD. Exceptions to this are exploding an entity, which permanently changes the entity type, or deleting an entity.

‡ AutoCAD entity is imported into DataCAD as a symbol. These symbols are like any other in DataCAD; they cannot be edited unless they are first exploded. If you explode an entity in 3D space, however, it will flatten to the X,Y plane. For instance, a Donut in a DWG file that is not parallel to the X,Y plane will be imported into DataCAD as a Polyline Symbol. If this symbol is not exploded, it will maintain its position when exported back to a DWG file. If the symbol is exploded, however, it will flatten to the X,Y plane, even when exported back to a DWG file.

£ Point shape is lost in translation.

⌘ A block comprised of entities on different layers will be imported into DataCAD as a symbol on the layer where the block was inserted; that is, all entities for that Block will be moved to the insertion layer. These entities will remain on this layer when exported back to a DXF or DWG file. Also, anonymous (unnamed) blocks in AutoCAD will be given a unique, numeric name when imported into DataCAD; this name will be saved with the block when exported.

There are a few AutoCAD entities that cannot be read, displayed, or otherwise saved during translation. These include: XREFs, viewports, ACIS data (Body), Rays (XLines), Ole Frames, Ole2 Frames, Tolerances, Images, Regions, Proxies, and named views.

Exporting

DATACAD	AUTOCAD	DATACAD
3D Arc	Arc	3D Arc
3D Line	Line	3D Line (if not parallel to X,Y plane) Line (if parallel to X,Y plane)
Arc	Arc	Arc
B-spline	Polyline	Polyline
Bezier	Polyline	Polyline
Circle	Circle	Circle
Cone	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons
Contour	Polyline	Polyline
Cylinder	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons
Dimensions (Associative)	Dimensions	Dimensions (Associative)
Ellipse	Ellipse (rel.13 or 14) Lines (rel.12)	Ellipse

DATACAD	**AUTOCAD**	**DATACAD**
Hatch (Associative)	Lines	Lines
Line	Line	Line
Mesh Surface	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons
Point	Point	Point
Polygon (with 3-4 vertices and no voids)	3D Face	Polygon
Polygon (with 5 or more vertices and/or voids)	Triangulated into multiple 3D Faces	Multiple 3-sided polygons
Polyline	Lightweight Polyline (rel.14) Polyline (<rel.14)	Polyline
Sphere	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons
Surface of Revolution	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons
Symbol	Block	Symbol
Text	Text	Text
Torus	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons
Truncated Cone	Polyface Mesh 3D Faces (if Decompose in Options dialog is on during export)	Polygons

Creating Custom Toolbars

Key (.KEY) files are the files that DataCAD uses to display and activate toolbars. You can create your own custom toolbar by creating a key file describing the bitmap files to use for the toolbar icons and the action DataCAD should take when each icon is selected.

The key file is a text file arranged in column groups, each group performing a different function. Once you are familiar with these group functions, you can easily edit the file. Each line of the key file is 185 columns long. A sample key file follows:

```
L|  |Move     |move___m|1          |Move drawing objects   |
L|  |Copy     |copy___m|2          |Copy drawing objects   |
M|  |RoofIt   |roofit_m|RoofIt     |3D Roof Creation Tool  |
C|  |3dkey    |dcad3d_m|m_dcad3d   |3D Icon Toolbar        |
```

A description of each column group and its function follows:

Column(s)	Name	Function
1	Action Code	Contains an action code that identifies the function or program to access
3-4		Not currently used
6-13	Menu Level String	Contains an eight character description for the Message Window
15-22	Bitmap (.BMP) filename	Contains the bitmap (.BMP) filename
24-103	Action	Contains the action to perform, the menu or macro to access, or the sequence to perform
105-184	Message	Contains the message, or description of the function, that appears in the Message Window; acts as a sort of "tool tip"

Column numbers not listed represent pipe characters that separate the columns. You cannot adjust the position of the column separators or type in these columns.

Action Codes

The action codes, represented by L, P, M, and C in column one of the key file example above, identify the function or program to access.

Action Code	Action
!	Places comments or leave a note for yourself within the key file
A	Executes a macro key sequence
C	Loads a new key file for a new toolbar
K	Executes a DataCAD shortcut key
L	Accesses an internal DataCAD function, such as Move
M	Executes a DCAL macro or tool
T	Binds a template file to an icon

Menu Level String

The menu level strings, in columns 6-13, are eight-character descriptions of what each icon does or what it accesses. Any characters are valid and you can enter whatever you want. This description appears in the Message Window before the message. For example, the Move menu icon contains a menu level string that displays Move and a message line that displays Move drawing objects in the Message Window.

Bitmap Filenames

The bitmap (.BMP) filename column group, in columns 15-22, contains the name of the bitmap file, or icon, to associate with the specified DataCAD function. A list of currently used bitmaps in the DCADWIN.KEY and DCADWIN3.KEY files follows. Each bitmap filename matches a DataCAD function name.

Action

Each letter in the Action Code column represents an associated action in the Action column group, columns 24-103. For example, if the Action Code column reads L, the Action column group must contain the menu level string corresponding to the menu it accesses. The following are Action Codes, including necessary Action column group information:

Action Code	Information Required in the Action Column Group
A	A key sequence, such as ^:^S6^F1^F1^F5, calls function keys, or keystrokes, in this order. This function allows you to create your own shortcuts to bind to icons. These sequences typically match a sequence from the DCAD.MCR file which contains only 26 user-definable sequences. See "DataCAD Keyboard Shortcuts" in this Appendix for information on creating keyboard shortcuts.
C	An eight-character key filename.
K	The key character that is used in keyboard shortcuts. This action binds a pre-existing sequence to an icon. For example, the shortcut for the Architect menu is Ⓐ. Type a in the Action column, not A; these characters are case sensitive. You cannot use the Alt, Tab↹, or arrow keys in the key character column.
L	The internal menu function number listed in the following table.
M	The name of the tool to access: for example, RoofIt.
T	The path and the filename of the template file to bind to the icon. A comma is required between the path and filename with the file extension, as in the following example: **tpl\plumb,residenc.tpl**.

DataCAD Internal Menu Function Numbers

1 - 2dmove	31 - freehand	61 - selection sets	90 - rectangular
2 - 2dcopy	32 - linkents	62 - 3dviewer	polygon
3 - 2drotate	33 - fileio	63 - elevation	91 - rectangular slab
4 - 2dmirror	34 - directory	64 - view controls	92 - vertical polygon
5 - 2dstretch	35 - 2pt_arc	65 - editplane	93 - vertical slab
6 - 2denlarge	36 - 3pt_arc	66 - plnesnap	94 - inclined polygon
7 - identify	37 - centangarc	67 - setper	95 - inclined slab
8 - 2dchange	38 - centarc	68 - walkthru	96 - voids
9 - 2derase	39 - centchrd	69 - setobliq	97 - partial
10 - cleanup	40 - arctan	70 - 3dgotoview	98 - 3dmove
11 - archtect	41 - ellipse	71 - saveimge	99 - 3dcopy
12 - 2dpolygons	42 - rad_circ	72 - clipcube	100 - 3drotate
13 - curves	43 - dia_circ	73 - hide	101 - 3denlarge
14 - text	44 - 3pt_circ	74 - 3dline	102 - 3derase
15 - linetype	45 - 2dmovedrag	75 - 3dsettings	103 - 3dstretch
16 - hatch	46 - 2drectarray	76 - blocks	104 - 3dchange
17 - 3dedit	47 - 2dcircarray	77 - vertcyln	105 - 3dexplode
18 - windowin	48 - fillets	78 - horicyln	106 - 3dedit
19 - to_scale	49 - chamfer	79 – cone	107 - 3dentity
20 - geometry	50 - 1lntrim	80 - truccone	108 - quick shader
21 - 2dgotoview	51 - 2lntrim	81 - sphere	109 - linear dimension
22 - grids	52 - weldline	82 - torus	110 - layer on/off
23 - layers	53 - tintsct	83 - meshsurf	111 - layer name
24 - template	54 - lintsct	84 - revsurf	112 - layer delete
25 - 2dsettings	55 - archdoor	85 - marker	113 - dxf read
26 - measure	56 - archwind	86 - 3dpolygon	114 - dxf write
27 - plotter	57 - cutwall	87 - slab	115 - pixelout
28 - dmension	58 - divide	88 - horizontal	116 - toolbox
29 - display	59 - intersect	polygon	117 - rstar2
30 - objectsnap	60 - tangents	89 - horizontal slab	

Message

Use the Message area column group, columns 105-184, for information about, or a definition of, the icon function. When you move the cursor over an icon, the Message Window displays this message

Editing the Toolbar

You can change any toolbar by editing its key file. You can also change the menu associated with any icon.

Make a backup copy of the key file before you edit it.

Editing a Key File

Use ⬆, ⬇, ➡, or ⬅ to move within the key file. You cannot use Tab↹ or place tabs anywhere in the key file.

Incorrectly editing key files can cause system lockups. Please follow these steps carefully and make sure that column separators, or pipe characters, remain in their original positions.

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1. Exit DataCAD and open a DOS text editor, such as Notepad. (This will ensure that all characters are displayed properly.)

2. Access the key file directory, \DATACAD\SUP\MENUPOF\, and open the key file you'd like to edit, S_DCAD2D.KEY, for example.

3. Move the cursor to the line where you want to change the menu/icon association.

4. Change any column group:

Action Code	Access a different program; for example, to access a tool instead of an internal DataCAD function, change an L to M.
Menu Level String	Type the eight-character description that you want to appear in the Message Window, a menu name for example.
.BMP filename	Leave the bitmap (.BMP) filename, which represents the icon, as it is. You are choosing a different menu to associate with the icon.
Action	Fill in the information requirements of the Action Code: the new internal function number (listed in the DataCAD Internal Menu Function Numbers table), path and program name, macro name, key sequence, key filename, or key character.
Message	Type the description of the function now associated with the icon.

5. Save the key file and exit the text editor.

All bitmaps must be 24 x 24 pixels. 16-color bitmaps are recommended.

Creating New Icons

1. Create a 16-color, square bitmap in bitmap (.BMP) format.

2. Save it with a filename of up to eight characters in the \DATACAD\SUP\MENUPOF\ directory.

Creating a New Key File

Incorrectly editing key files can cause system lockups. Make sure that column separators, or pipe characters, remain in their original positions.

1. Copy an existing key file from the \DATACAD\SUP\MENUPOF\ directory to a new filename. Store this file in the same directory as the other key files.

2. Edit this new file using existing icons and/or icons that you created. You can associate any bitmap (.BMP) file with any command or function, including functions that are already used in other key files.

Follow the steps in "Editing a Key File" earlier in this section. Remember you can change the bitmap (.BMP) filename in the bitmap (.BMP) filename column when creating a new key file. Changing the bitmap (.BMP) filename allows a different icon to appear in the toolbar.
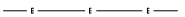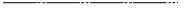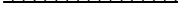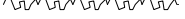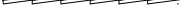
All bitmaps must be 24   x 24 pixels; 16-color bitmaps are recommended.

User-Defined Linetypes

	Name	Pattern	Line spacing values	Defined by:
Standard	Solid		N/A	Center
	Dotted		1 = 1'-0" on center dots	Center
	Dashed		1 = 1'-0" on center dashes	Center
	Dot-Dash		1 = 1'-0" on center dot to dot	Center
User-definable lines, 50 maximum	ElecLine		1 = 1'-0" on center E to E	Center
	TelLine		1 = 1'-0" on center T to T	Center
	Box		1 = 1'-0" on center box to box	Center
	PropLine		1 = 1'-0" on center double dashes	Center
	Insul		0.3 = 6" width insulation	Center
	Plywood1		0.0.3/4 = 3/4" width plywood	Left edge at line angle of 90°
	Plywood2		0.0.1/2 = 1/2" wide plywood	Left edge at line angle of 90°
	Hedge		1 = 4" wide line pattern	Center
	CentrLin		1 = 1'-0" dash to dash	Center
	Section		1 = 1'-0" on center breaks	Center
	ShingleR		0.8 = 4" to the weather (for line length divisable by set spacing)	Left edge at line angle of 270°
	LapSidR		0.4 = 4" to the weather (for line length divisable by set spacing)	Left edge at line angle of 270°
	ShipLap		0.4 = 4" to the weather (for line length divisable by set spacing)	Left edge at line angle of 270°
	Brick		0.8 = 4" nominal brick width	Left edge at line angle of 90°
	4Block		0.8 = 4" nominal brick width	Left edge at line angle of 90°
	8Block		0.8 = 8" nominal block width	Left edge at line angle of 90°
	12Block		0.8 = 12" nominal block width	Left edge at line angle of 90°
	RigidIns		0.2 = 2" thickness	Left edge at line angle of 90°
	Grass		0.5 = 3" high grass	Lower edge at line angle of 90°
	GroundLn		1 = 6" between pattern breaks	Lower edge at line angle of 90°
	ShingleL		0.8 = 4" to the weather (for line length divisable by set spacing)	Right edge at line angle of 270°
	LapSidL		0.4 = 4" to the weather (for line length divisable by set spacing)	Right edge at line angle of 270°

Linetype Definitions

DataCAD allows you to use four standard linetypes and up to 175 user-defined linetypes. The definitions for linetypes provided with DataCAD are located at the end of this section. These definitions are in the DCADWIN.LIN file in directory \DATACAD\SUP\. Define new linetypes using any text editor. The lines consist of small segments linked together to form longer lines. Each segment is 100 "units" in length, and may be divided into as many as 20 definition components. One hundred units equals the line spacing length.

The first line of each definition must contain either an asterisk (*) or a greater than symbol (>), followed by a space and the title of the linetype. When an asterisk is used, DataCAD draws a short line, called a tail, to fill any remaining space not filled by the pattern. When a greater than symbol is used, DataCAD repeats the pattern as many times as possible to fill the specified space and then stretches the pattern slightly to fill any remaining space. The title must not exceed eight characters in length.

The second line specifies the factor by which one segment of the linetype must be multiplied to draw at the correct size. As 100 units equal the line spacing length to draw one segment or 100 units at a size of 8", a factor of 8/12 or .6667 is entered. Successive lines of the definition contain the origin, direction, and distance of each component in the line segment. Use one line for each component, with no more than 20 lines total, including the spacing value.

Each component is assigned a length based on the 100-unit dimension. Each component definition consists of two numbers. The first number specifies the line direction.

0	Right
90	Up
180	Left
270	Down

The second number specifies the line length. A line length of 50 equals one half the distance of the total line segment. A minus sign (-) before the first number moves the pen clockwise. Pen down commands (visible lines) have a space between the two numbers. Pen up commands (invisible lines) use a space and a minus sign between the two numbers.

Definitions for linetypes provided in DataCAD are as follows:

>TelLine		>ElecLine		>Box	
4.0		4.0		4.0	
0	41	0	40	0	65.858
0	-6	0	-7	0	-10
71.56	-3.953	-71.56	-3.953	45	10
0	3.5	90	7.5	-45	10
-180	-1.675	0	3.5	225	10
-90	7.5	-90	-3.75	135	10
0	-1.675	-180	3.5	0	-24.142
71.56	-3.953	-90	-3.75		
0	-6	0	3.5		
0	41	71.56	-3.953	>PropLine	
		0	-7	8.0	
		0	40	0	75
>Plywood1				0	-5
0.0625		>Section		0	5
0	100	4.0		0	-5
270	-1	0	88	0	5
180	100	60	6		
270	-32.3333	300	12		
0	100	60	6	>Insul	
270	-33.3334			0.1667	
180	100	>ShingleR		-118.0362	47.3592
270	-32.3333	1.0		-88.75	21.5060
0	100	5	100	-63.25	21.5060
270	-1	275	4	-37.75	21.5060
180	100	95	-4	-12.25	20.5060
90	-1	185	-100	12.25	20.5060
45	45.7262	0	50	37.75	21.5060
135	47.1405	5	100	63.25	21.5060
45	45.7262	275	4	88.75	21.5060
270	-1	95	-4	118.0362	94.7184
		185	-100	88.75	21.5060
		0	50	63.25	21.5060
>Plywood2				37.75	21.5060
0.0625				12.25	20.5060
0	100	>Hedge		-12.25	20.5060
270	-1	1.0		-37.75	21.5060
180	100	63.26	22.4	-63.25	21.5060
270	-32.3333	0	10	-88.75	21.5060
0	100	289.59	39	-118.0362	47.3592
270	-33.3334	21.48	18		
180	100	101.19	17		
270	-1	14.02	13.7	>LapSidR	
0	100	277.08	26.9	0.5	
90	-1	0	10	98	12.5
135	45.7262	68.12	18	8	110
45	45.7262	51.20	21.3	278	12.5
90	-1	291.48	18	188	110

>CentrLin
8.0

0	85
0	-5
0	5
0	-5

>Brick
0.6667

0	-2.605
270	45.3125
0	28.125
90	45.3125
180	28.125
0	-33.333
270	45.3125
0	28.125
90	45.3125
180	28.125
0	-33.333
270	45.3125
0	28.125
90	45.3125
180	28.125
0	-2.604

>Grass
0.5

0	9
100	50
280	-50
0	17
90	30
270	-30
0	-1
85	40
265	-40
0	16
100	20
280	-20
0	17
75	30
255	-30
0	16
100	20
280	-20
0	8

>Shiplap
0.5

90	5
0	16
90	7.5
0	96
270	5
180	16
270	7.5
180	96

>RigidIns
0.1667

270	100
0	100
-270	-25
180	100
-270	-25
0	100
-270	-25
180	100
-270	-25
0	100
180	-75
270	100
0	-25
-270	100
0	-25
270	100
0	-25
-270	100

>4 Block
0.6667

0	-2.3437
270	45.3125
0	95.3125
90	45.3125
180	95.3125
0	-2.3437

>8 Block
0.6667

0	-2.3438
270	95.3125
0	95.3125
90	95.3125
180	95.3125
0	-2.3437

>GroundLn
4.0

0	35
80	4
-80	4
0	5
80	2
-80	2
0	45
80	3
-80	3
80	6
-80	6
0	13.924

>ShingleL
1.0

355	100
85	4
265	-4
175	-100
0	50
355	100
85	4
265	-4
175	-100
1	50

>LapSidL
0.5

262	12.5
352	110
82	12.5
172	110

>12 Block
0.6667

0	-2.3438
270	145.3125
0	95.3125
90	145.3125
180	95.3125
0	-2.3438

Hatch Patterns

Hatch patterns included with DataCAD are pictured below.
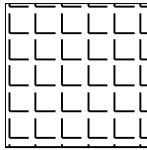
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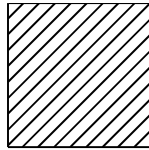
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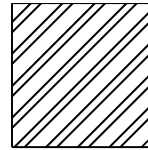
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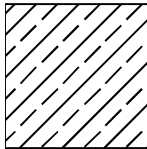
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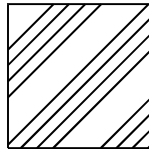
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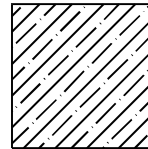
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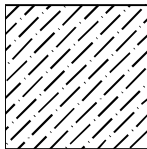
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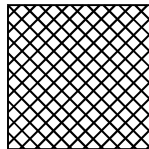
37

38

Box
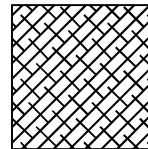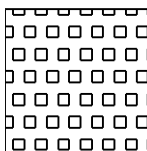
Brass
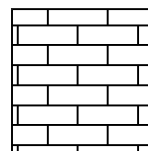
Brick
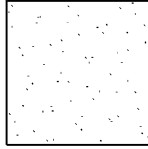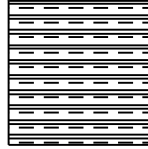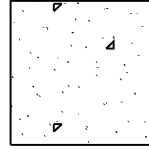
Cement	Clay	Concrete
CMU	Cork	Cross
Dash	Dolmt	Dots
Earth	Escher	Flex
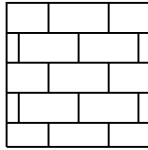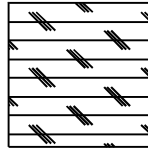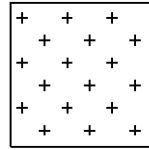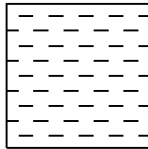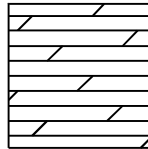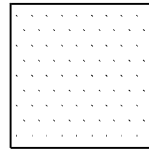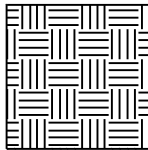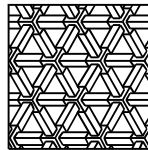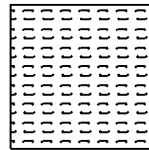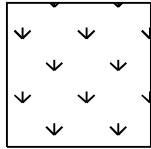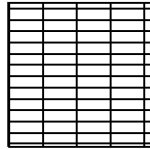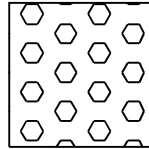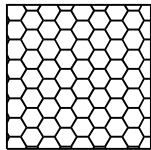
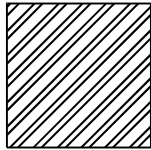|		
Grass	Grate	Hex
Honey	Hound	Insul
Line	Mudst	Net
Net3	Plast	Plast1
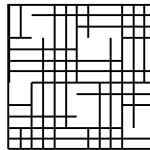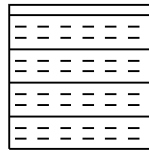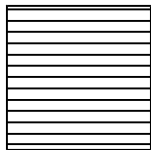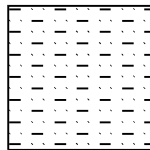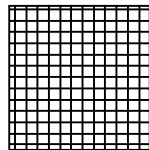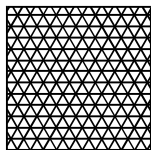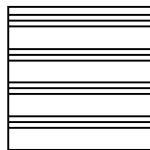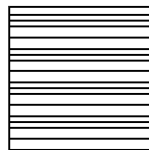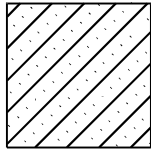
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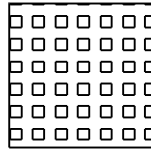
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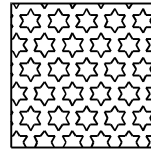
Stars

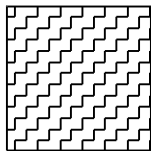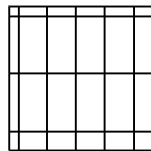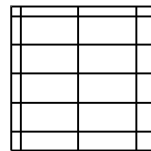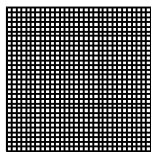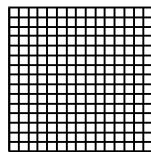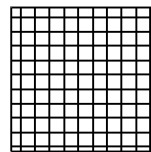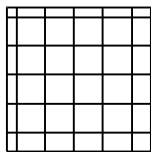Steel
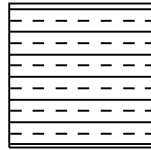
Trans
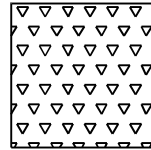
Triang

Zigzag

24x48Til

48x24Til

4x4Til

8x8Til

12x12Til

24x24Til

DataCAD Keyboard Shortcuts

You can use keyboard shortcuts for quick navigation or to perform functions. Shortcuts have also been called keyboard macros, keyboard interrupts, accelerator keys, hot keys and immediate mode commands. To set up your own shortcuts, see "Defining Shortcuts" below.

In the following table, the Mnemonic column provides an easy way to remember some of the shortcuts. Some shortcuts, like Copy, are noted as being "2D/3D". In this case, when you use the shortcut from a 2D menu, you'll open the 2D Copy menu. Similarly, using the shortcut while in a 3D menu takes you to the 3D Copy menu.

In this manual all keyboard shortcuts are described exactly how they should be executed. If a shortcut requires a lowercase letter, you will be instructed to press only that letter. If a shortcut requires an uppercase letter, you will be instructed to press Shift and that letter. (If Caps Lock is on, you can just press the letter.) In some cases, both the uppercase and lowercase letter perform the same function.

FUNCTION/MENU	MNEMONIC	KEY(S)
2LnTrim menu	Join	Alt+J
3D Edit menu		J
3D Entity menu		J or Alt+U
3D Views menu	Views	Y or Shift+V or Alt+V
Active layer, scroll backward to set		Shift+Tab
Active layer, scroll forward to set		Tab
Append selection set toggle	Append	Shift+A
Architect menu	architect	A
Cap wall ends toggle		|
Center screen to cursor location		Home
Change menu	Change	Alt+C
Colors, scroll backward	Kolors	Shift+K
Colors, scroll forward	kolors	K
Coordinate entry		SpaceBar
Copy to clipboard	Copy	Ctrl + C
Copy menu (2D/3D)	Copy	C or Shift+C

FUNCTION/MENU	MNEMONIC	KEY(S)
Cursor size toggle (big vs. regular)		`+`
Curves menu	Arcs	`Alt`+`A`
Cut to clipboard		`Ctrl` + `X`
Digitizer	digitIzer	`I`
Dimension menu	Dimension	`D` or `Shift`+`D`
Dimension, Linear menu	Dimension	`Alt`+`D`
Directory menu	directorY	`Alt`+`Y`
Display list, regenerate		`U` or `Shift`+`U`
Display associated saved view		`Shift`+`1` to `0`
Edit menu		`;` or `Ctrl`+`C`
EditSets menu	Selection sets	`Shift`+`S`
Elevation, back		`Ctrl`+`PgUp`
Elevation, front		`Alt`+`=`
Elevation, left		`F11`
Elevation, right		`F12`
Enlarge menu	Enlarge	`Alt`+`E`
Erase last entity		`,`
Erase last group		`<`
Erase menu (2D/3D)	Erase	`E` or `Shift`+`E`
Exit		`Ctrl`+`F4`
Fillets menu	Fillets	`Alt`+`F`
FreeHand menu	freeHand	`Alt`+`H`
Geometry menu	Geometry	`Alt`+`G`
GoToView menu	View	`V`
Grids menu	Grids	`G` or `Shift`+`G`
Hatch menu	Hatch	`H` or `Shift`+`H`
Help		`Ctrl` + `F1`
Hide menu		`Shift`+`Y`
Icon toolbar toggle		`Ctrl`+`F11`
Identify	Identify	`Shift`+`I` or `Alt`+`I`

FUNCTION/MENU	MNEMONIC	KEY(S)
Input mode:		Insert
1 : Relative Polar (distance, angle)		
2 : Absolute Polar (distance, angle)		
3 : Relative Cartesian (x, y coordinates)		
4 : Absolute Cartesian (x, y coordinates)		
Layer search toggle		'
Layers menu	Layers	L or Shift+L
Line overshoot amount		_
Line overshoot toggle		-
Line spacing, set		F
Linetype menu	Linetype	Alt+L
Linetypes, scroll backward		Shift+Q
Linetypes, scroll forward		Q
Line weight, decrement	BIG Weight to small	Shift+W
Line weight, increment	little Weight to big	W
Link Entities menu	linK	Alt+K
Measures menu		Alt+X
Mirror menu (2D)	Mirror	Alt+M
Move menu (2D/3D)	Move	M
Multi-view windows	multi-view Windows	Ctrl + W
New drawing, create	New	Ctrl+N or Alt+N
Object snap	sNap	N or Shift+N
Object Snap menu		Shift+X
Object Snap perpendicular toggle	Object snap	Alt+O
Online Help		Ctrl+F1
Open Files	Open	Ctrl + O
Ortho mode toggle	Orthogonal	O or Shift+O
Orthographic View	orthographic	Alt+O
Pan		→ ← ↑ ↓
Parallel View, most recent		Alt+9

FUNCTION/MENU	MNEMONIC	KEY(S)
Paste from clipboard		`Ctrl` + `V`
Perspective View, most recent		`Alt`+`-`
Plotter menu	Plotter	`Alt`+`P`
Polygons menu	Rectangle	`Alt`+`R`
Previous view, restore	Previous	`P` or `Shift`+`P`
Print	Print	`Ctrl`+`P`
Quit	Quit	`Alt`+`Q`
Redo		`Ctrl` + `Y`
Reference point entry		`'`
Restore last erased entity		`.`
Restore last erased group		`>`
Rotate menu (2D/3D)	Rotate	`R` or `Shift`+`R`
Save current drawing	Save File	`Ctrl`+`S` or `Shift`+`F`
Screen refresh		`Esc`
Screen refresh by layer, stop		`End`
Screen refresh, stop		`Del`
Select	sElect	`Ctrl` + `E`
Selection set, change active		`Alt`+`1` to `8`
Snap grid spacing, set	spacing	`S`
Snap grid toggle		`X`
Snapping point entry		`~`
Stretch menu	Stretch	`Alt`+`S`
Symbol, insert by name		`"`
Tangents menu		`B` or `Shift`+`B`
Template menu	Template	`T` or `Shift`+`T` or `Alt`+`B`
Text menu	Text	`Alt`+`T`
Toolbox menu	Macros	`Shift`+`M`
ToScale menu	Zoom	`Alt`+`Z`
Undo		`Ctrl` + `Z`
Utility menu		`:`

FUNCTION/MENU	MNEMONIC	KEY(S)
Wall T intersection clean-up toggle		`\`
Walls toggle and set new wall thickness		`=`
Weld Line menu	Weld	`Alt`+`W`
Window In		`/`
World coordinate identify		`?`
Z-base or Z-height attribute entry	Z-base/Z-height	`Z` or `Shift`+`Z`
Zoom Extents		`Ctrl`+`-`
Zoom In		`PgDn`
Zoom Out		`PgUp`

Defining Shortcuts

To define your own shortcuts, edit the file DCADWIN.MCR in the \DATACAD\SUP\ folder using a text editor. You can only define shortcuts that use a letter in combination with `Alt`. You cannot define shortcuts that are accessed by a single letter or those that use a letter in combination with `Shift`.

Define each shortcut key on a separate line. The following line defines a shortcut to Enlarge:

    E;^f6

? The first character E, indicates the key that will start the shortcut. Pressing the character E will call the shortcut. This will also supercede the command that E currently does.

? The semicolon indicates that the command is in the Edit menu; a colon indicates the Utility menu.

? The caret (^) separates each step through the menu structure.

? F6 indicates the function key that loads the Enlarge option on the Edit menu.

? If the function were on a menu under Enlarge, you would follow the F6 with an additional caret, followed by the appropriate function key on the next menu.

You may have some older keyboard shortcuts that include `Alt` + 183 near the beginning of the line and end with `Alt` + 184. This was used to turn off menu display to increase the speed of shortcut execution in DataCAD for DOS. It is no longer needed in DataCAD for Windows, although these shortcuts will still function normally in DataCAD for Windows.

DataCAD Fonts

DataCAD includes the following fonts; the first column lists the font name, while the second column provides examples of upper- and lowercase characters.

ARCDR2GP	ABCDEFG abcdefg 1234567890
ARCWY2FW	ABCDEFG a b c d e f g 1 2 3 4 5 6 7 8 9 0
ARCWY2GP	ABCDEFG abcdefg 1234567890
ARCWY2HC	ABCDEFG abcdefg 1234567890
ARCWY2LC	ABCDEFG abcdefg 1234567890
ARCWY2TX	ABCDEFG abcdefg 1234567890
AVG_TP	ABCDEFG abcdefg 1234567890
BLOCK	ABCDEFG ABCDEFG 1234567890
COMPLEX	ABCDEFG abcdefg 1234567890
HLV_BP	ABCDEFG abcdefg 1234567890
HLV_LP	ABCDEFG abcdefg 1234567890
HLV_MP	ABCDEFG abcdefg 1234567890
HLV_TM	ABCDEFG a b c d e f g 1234567890
HLV_TP	ABCDEFG abcdefg 1234567890
HLV_TPX	ABCDEFG abcdefg 1234567890
MCG_TP	ABCDEFG abcdefg 1234567890
ORIG	ABCDEFG abcdefg 1234567890
ORIG2	ABCDEFG abcdefg 1234567890
ROMAN	ABCDEFG abcdefg 1234567890
ROMAN2	ABCDEFG abcdefg 1234567890
ROMANC	ABCDEFG abcdefg 1234567890
ROMANS	ABCDEFG abcdefg 1234567890
SIMPLEX	ABCDEFG abcdefg 1234567890

Extended Characters

Five DataCAD fonts feature extended characters, which allows you to include common drafting symbols, fractions, and exponents in your text:

|	
ARCDR2GP	ArcDraft General Purpose
ARCWY2GP	ArcWyde General Purpose
ARCWY2HC	ArcWyde Heavy Chisel
ARCWY2LC	ArcWyde Light Chisel
HLV_TPX	Helvetica Thin Proportional with extended characters

The following chart shows the drafting symbols, exponents and fractions you can include in your text. To create drafting symbols and exponents, press [Alt] and hold it down while you type the corresponding number using the numeric keypad.

To create fractions, use the Exponent/Numerator column of the chart to enter the numerator of your fraction; use the Denominator column to draw the denominator and the division sign. For example, to draw a fraction of 5/16 in your text, hold down [Alt] and type **135** using the numeric keypad. When you release [Alt], the 5 will appear. Depress [Alt] again and type **153** on the numeric keypad. The fraction is completed when you release [Alt].

If you'd like to change your font but you've used extended characters in your text, make sure the new font also includes the extended characters. If you choose a font which does not include the extended characters, the content of your text may be changed.

Drafting Symbol			Exponent / Numerator		Denominator	
⌀	Diameter	140	O	130	/2	150
⊓	Square Feet	141	I	131	/4	151
℗	Property Line	142	2	132	/8	152
			3	133	/16	153
ℂ	Center Line	143	4	134		
W/	With	144	5	135		
○	Degree	145	6	136		
			7	137		
±	Plus-or-minus	146	8	138		
∡	Angle	160	9	139		