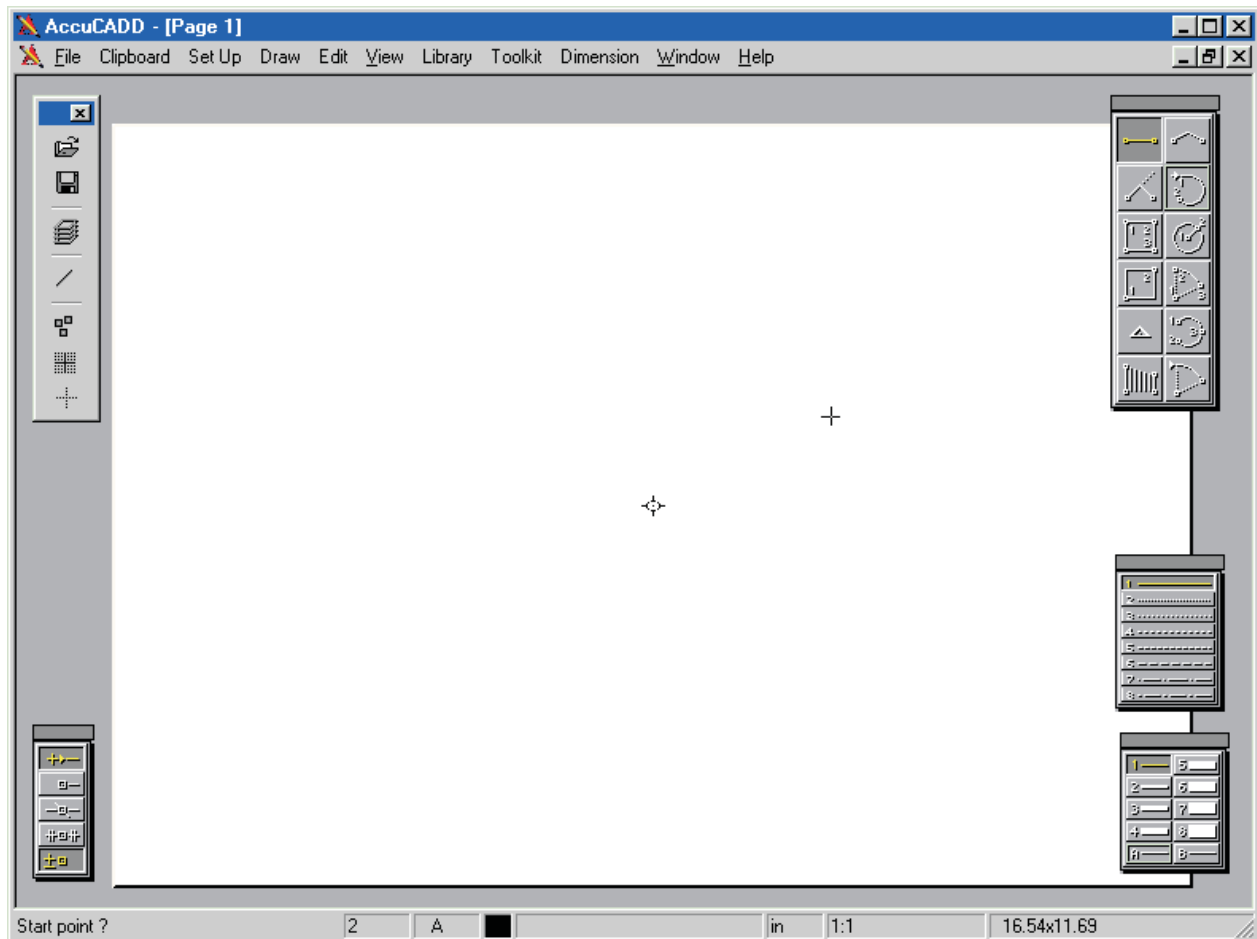


This section summarizes the procedures for starting and operating Accucadd. An overview of the ideas required for using the system is given in the next section, ORIENTATION. A full introduction to using the system is given in the Accucadd Tutorial.

Using Accucadd This section tells you how to start up a single-user (“stand-alone”) installation of Accucadd. If an appropriate license has been purchased, Accucadd can also be used in network installations by employing appropriate third-party hardware and software—consult your Network Manager.

Single-user Accucadd First, check that Accucadd has been installed on your computer. Accucadd icons should appear on the Start menu, the Start/Programs sub-menu, and on the Desktop. Any of these can be used to start the program. If a Windows box asks you about loading the last drawing, click “No”, and you will see the blank Accucadd window on the screen:



The Accucadd display Accucadd’s opening drawing display shows the drawing and some of the controls for working on it, which are explained below. You can arrange the Accucadd screen in different ways, and then save that

arrangement to be used next time. If someone has already done this to your version, it may not look exactly like the above picture.

Communicating with Accucadd

The primary way to communicate with Accucadd is with your mouse. The position of the cursor is indicated by a small cross within the drawing area, and by the familiar Windows arrow outside the drawing area.

Buttons and clicking

This manual generally assumes a two-button mouse. Certain additional capabilities, available if you have an "Intellimouse", will be mentioned at appropriate places in the text.

The left-most mouse button is the primary button. You will use this for operating most Accucadd controls; it is often simply called "the button". Unless we say otherwise, "Clicking" refers to the left button.

Selecting

The mouse is used in Accucadd the same as in other Windows programs: to select something on the screen, move the mouse until the cursor is over it, hold it there, and click the left button. If the object on the screen is an Accucadd control, it will 'highlight' while the cursor is over it. Clicking while a control is highlighted will operate it, and then different highlighting will appear and remain.

Other types of selections will be enabled by some of Accucadd's controls, with different cursor forms indicating them. These will be mentioned later.

Keyboard

The keyboard is used in several ways. One is as a quick alternative to using the mouse when selecting certain frequently used Accucadd functions. These are indicated by a letter next to the name of the function on their menus; depress that letter on the keyboard to invoke the function directly. The keyboard is also used to provide numerical input for certain operations, such as to specify the length of a line; in such cases a text box appears and the value entered is displayed. The keyboard is used when entering text, and finally, some of the keyboard's function keys have special uses. More details about all of these uses of the keyboard appear later.

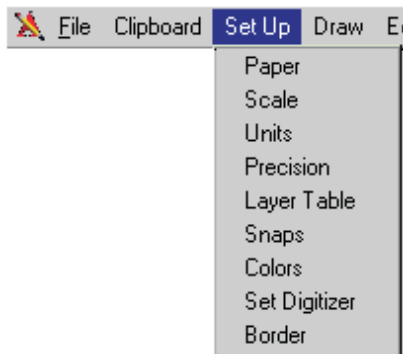
If you make an error while typing, you can use the forward and back arrow keys and **Delete** or **Back Space** to erase characters. When you are using the Accucadd text editor, more powerful editing facilities can be used; these are described in section 5 of this manual under DRAW: TEXT.

Enter

You will use this key, which means 'end of a line of input', and is usually marked **Enter** or **Return**, quite often while using Accucadd. We shall call it **Enter** from now on. While drawing with Accucadd, it is used to mark the end of a piece of typing. However, if you are using the text editor, it marks the end of one line and the start of a new one.

Operating the Menus

The Accucadd Main Menu lists eleven function headings or menu items, and the Accucadd icon:



To select a function heading (or item) from the main menu, move the cursor until it is over the heading you require and click the button to confirm your selection. Accucadd will highlight the selection and display the submenu for that group. The submenu “drops down” from the main menu.

For example, if you point with the cursor to Set Up on the main menu and click the button, you will see the Set Up submenu.

To select a function from the submenu, position the cursor over the function and click the button again. Enter to leave a submenu without selecting a function, move the cursor away from the submenu and click the button.

Status Reporting

At the very bottom of the screen you will see some boxes that form the Status Bar.



These boxes allow you to get further details on some of the information they display, and to change some settings without using the Accucadd menus. As you draw, Accucadd displays the following information:

- 1 A prompt for the next action required.
- 2 The number of the “active layer” in the current drawing.
- 3 The color number permitted in the active layer (in this example “A” means “all” colors are permitted).
- 4 A block showing the currently selected drawing color.
- 5 A report on current activity, described below.
- 6 The current units of measurement.
- 7 The current drawing scale.
- 8 The name of the current paper size, and its dimensions in the currently selected units.

Layers Click the button with the cursor over box 2 (the active layer number) and you will see a dialog box where you can enter a layer number, name, or the letter “N” to turn off the active layer:



If you enter the number or name of an existing layer, and hit Enter, the box will disappear and the new layer number will appear in box 2 of the status bar. If you enter “N”, the word “OFF” will appear. See Set Up: Layer Table for more information.

Esc If you hit Esc while the dialog box is displayed, the box will disappear without causing any change. In general, pressing the Esc key undoes the action corresponding to the most recent mouse click. Hitting it again undoes the action of the previous click, and so on, for as many clicks as can be undone, which varies depending on the sequence of operations just completed.

Colors If the color number box (box 3) shows ‘A’, you can select any color(s) you wish for drawing. If it shows a number, that is the color that the currently active layer has been restricted to. To select a new color, click the button with the cursor over the color box. Accucadd produces a window on the screen showing all the colors that are available. To choose a new color, point to it with the cursor and click the button (see Draw: Elements). Color numbers are explained in the section on ‘Colors’, under Accucadd: Orientation.

Report box This displays the data about the operation in progress, such as the length of a line, the radius of an arc, the text that you’re about to place on the drawing, the pathname of the library you’re using, and so on. Clicking the box displays the current time (as set up in Windows). It isn’t updated until you click the box again, or it’s used to show something else.

Units Selecting the units box (box 6) produces a menu for you to select a new system of units. See Set Up: Units for details.

Scale Selecting the scale box (box 7) allows you to enter a new drawing scale, as described under Set Up: Scale.

Paper size Selecting the paper size box (box 8) produces a menu for selecting a new paper size, described under Set Up: Paper Size.

Suppress status bar display You can click on the main menu item Window and select “Status Bar” to toggle its display on and off, indicated by the presence or absence of a check mark.

X-Y Coordinates Another example of toggling a box on and off is to select Toolkit: X-Y Coord, which produces a box displaying a continuous readout of the cursor position.

Getting Help Accucadd has a built-in Windows-style help system. One way to use it is to click on Help: "Help Contents" and browse or search for the topic of interest. Another way to access help is to position the mouse cursor to highlight an Accucadd menu item and press the key "F1". This will bring up the appropriate section of the Accucadd Windows help system (in a few cases, an error message will be displayed because no information is available on that particular topic).

This manual is also available as a PDF file on the installation disk.

Toolbar Another item on the display that can be toggled on and off is the toolbar (click on menu item Window: Toolbar). The toolbar can also be turned off by clicking the "x" button at its upper right corner.

The buttons on the toolbar can be clicked to access several commonly used Accucadd functions. From top to bottom, the icons refer to these menu selections:



Library: Load or File: Open

Library: File or File: Save

Setup: Layer table

Draw: Elements

Toolkit: Points

Toolkit: Grid

Toolkit: Orth Trap

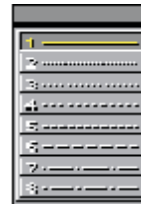
The use of these functions is explained in the corresponding sections of this manual.

Palettes The other graphic objects on the opening display screen are some of the many "palettes" used by Accucadd to present the icon-labeled buttons which control various operations. Each of these palettes will be illustrated again and explained in the corresponding section of this manual.

Moving palettes Each of Accucadd's palettes and the toolbar can be re-positioned on the screen by placing the cursor on its upper bar, holding the left mouse button down, "dragging" to the desired new location, and releasing the mouse button.



Elements



Line style



Line weight



Points

Other palettes

Many of the Accucadd menu selections will cause other palettes to appear. For example, if you click Edit: Erase, the "Groups" palette will appear (and some of the other palettes will temporarily disappear):



The Group palette allows selection of both entire drawing elements (lines, arcs, curves, and so on) and parts of elements (such as the part of a line between two other lines). It is used by

- Edit: Erase
- Edit: Change
- Edit: Move
- Edit: Stretch Move
- Edit: Implode
- Edit: Sort
- Library: Group Export

Special buttons

Some special buttons that appear on several palettes are illustrated here:



OK: Use this button to indicate that the program can proceed with its action. For example, it might indicate 'Delete the marked items', 'I have set up the grid, now draw it' or 'Yes, I am sure I want to do that'. Sometimes it only means 'Acknowledged'.



EXIT: This button always means 'stop doing whatever is going on, and leave the Accucadd function that is doing it'. It is used to exit from functions, and to back down from performing irreversible operations.



CANCEL: This button symbolizes stopping a current action. Its usual meaning is 'Turn this off now'.



STATUS: This button will produce a Status Window (see Accucadd: ORIENTATION), to allow you to use optional controls for the function you are using.

The rest of Accucadd's palettes are shown here so that when you encounter them during familiarization you can refer to the appropriate section of the manual:

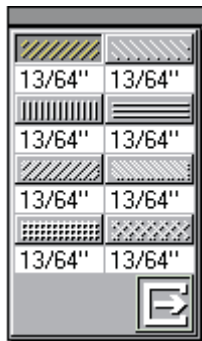


The Whole Group palette only allows selection of entire drawing elements (lines, arcs, curves, and so on): it can't select parts of them. It is used where an "all or nothing" type of selection is required, such as by

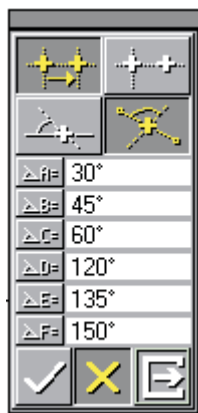
Edit: Erase Points

Edit: Explode

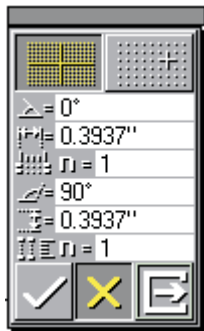
Toolkit: Find Layer



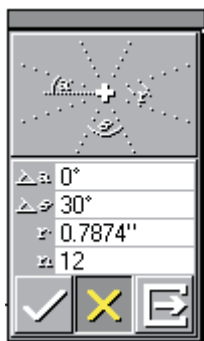
The Draw: Hatch palette allows you to select which of the eight pre-drawn hatch patterns you will use for hatching or sectioning. Each pattern has adjustable spacing and line style, providing virtually unlimited hatch pattern combinations.



The Toolkit: Angle Trap palette is where you specify the angle(s) that you would like your cursor to snap to. It's like the adjustable drafting machine head provided on expensive drafting tables.



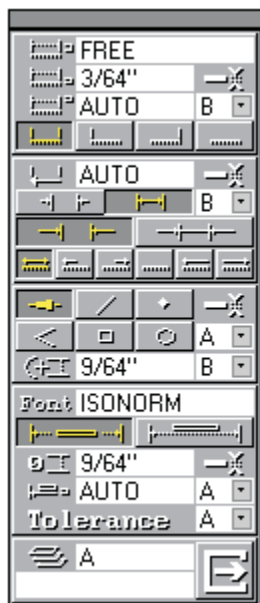
The Toolkit: Grid palette let's you specify a "rectangular" snap grid. The two grid "axes" can be independently set over 180 degrees (they need not be perpendicular), and the snap grid spacing is also independently settable. Grids can be screen centered or moved to coincide with previously drawn elements.



The Toolkit: Radial Grid palette lets you set up arrays of concentric snap points at a specific angular separation, and with a set distance along the radial direction.



The Toolkit: Tangent palette gives you easy access to finding and constructing tangents. There are two basic selections—from a point to a circle, and between two circles. All possible tangent points are displayed, and Accucadd will draw a tangent line automatically if you wish.



Dimension: Setup. This formidable looking palette actually provides an intuitive and graphical way of setting up all the parameters needed for automated dimensioning. If you are content to use one of the supplied dimension standards you may never use it. However there are usually situations in which you need to depart from the standard to a small degree—for example, omitting one of the leader lines. No more _ or other computerese: just click and set.



Dimension: Distance palette. Use this to dimension a line or a distance (Accucadd can dimension gaps or breaks as well as drawn elements). This palette controls the general type of the dimension: whether you want total distance, X or Y component, or distance from datum. Also select dimension text positioning, and isometric dimensioning mode as required.



Dimension Text palette. Here's where you control how the dimension text is oriented, and whether, and in what way, tolerancing is applied.



Dimension: Select distance. Specify whole or part element, and automatic dimensioning along one of two types of automatically generated paths. Line palette

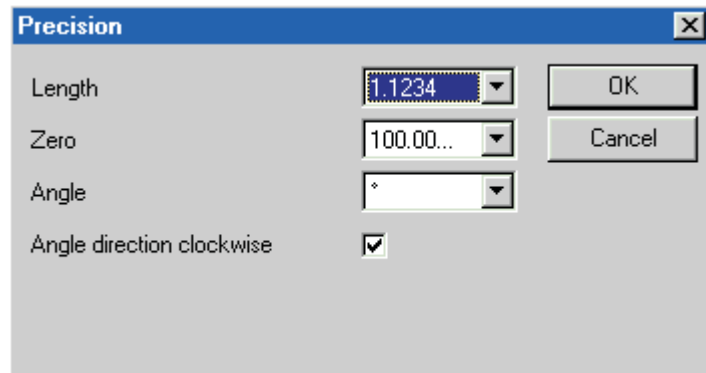


The Dimension: Radius palette controls the style applied to radius and diameter dimensions.



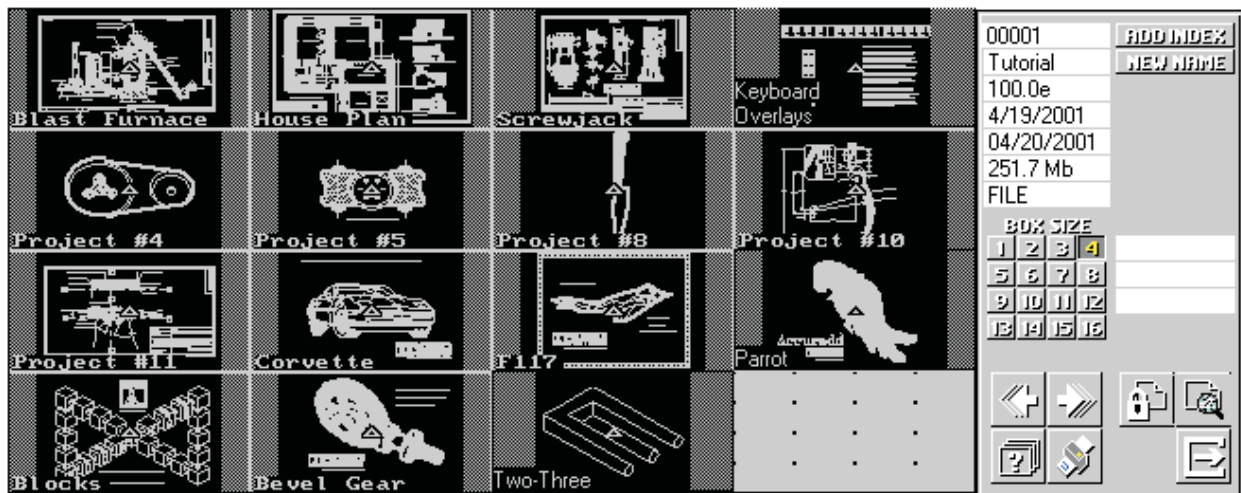
Use the Dimension: Angle palette to select what angle you would like to dimension: an angle defined by three points, or the sweep angle of an arc.

Windows Input Screens Invoking some of Accucadd's functions results in the display of a Windows dialog. A simple example is Set Up: Precision.



More complex Windows input dialogs will also be encountered as described later in the manual. In each case, the specific way to enter input data will be described.

Accucadd Input Screens There are also several special Accucadd dialogs, an example of which is File: Save:



The protocols for using these input screens are explained at appropriate places in the manual.

Numbers on Palettes



Many palettes contain numbers, which control various properties of the function you are using. To enter values for these numbers, position the cursor over the area where the number is displayed and click the button. A window pops up for you to type the new value; press **Enter** to finish it. Press **Escape** to close the window and leave the original number unchanged.

Accucadd confirms your entry by displaying the new value of the number. Select the appropriate icon to make the value you have entered effective. The numbers that can be entered into palettes are explained in the description of each Accucadd function.

Moving something with the mouse is known as 'Dragging'. You will use dragging when drawing things, as well as in operating controls.

Experimentation is the best way to become familiar with palettes. You can preserve the settings you make on palettes using the Save Settings dialog when exiting Accucadd.

Keyboard Control For basic use, Accucadd is controlled with the mouse. This is used to enter positions, by clicking the button when the cursor is at the required location. The keyboard is used only when Accucadd needs information from it, and then the information will be requested by the program.

Keyboard Input For precise work, you will need to enter coordinates and distances from the keyboard. Accucadd allows you to enter formulas as well as numbers, and is explained in "Keyboard Input" under Accucadd: Orientation.

The Escape Key The Escape key, (usually labeled **Esc**) is used to escape from a function without completing the actions required.

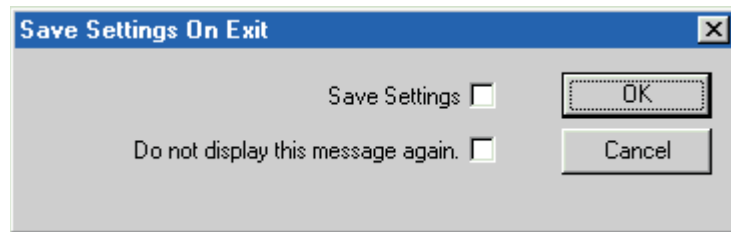
Using Esc For example, if you are drawing a straight line, the system expects you to mark a start point followed by an end point. If you have started the line in the wrong place, you can cancel it by pressing **Esc** (or clicking the second mouse button). Accucadd then waits for you to place the start point again, or to select another function.

When using a function consists of a series of steps, pressing **Esc** cancels the most recent step. Pressing **Esc** twice cancels the two most recent steps, and so on.

In most Accucadd functions, **Esc** (or the second mouse button) can be used to quit the action.

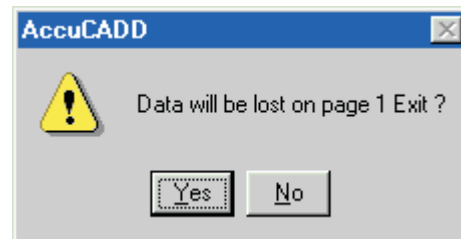
How to Stop or Exit When you have finished drawing, select the Exit function from the Set Up submenu.

You will get two or more dialogs. The first is "Save Settings..." and is used to save the current Accucadd settings (such as palette positions, grid spacings, and so on) to be the settings that Accucadd will use next time it starts up.



To use this feature, click on the Save Settings check box (so that it is marked). To prevent others from changing your settings, click the “Do not display...” check box (so that it is marked). When both check boxes are set as you wish, click OK. To dismiss the dialog box without taking any action, click Cancel.

The second dialog is a warning that the drawing will be lost unless you have filed it in the library, or saved it in one of the available file formats. If you have more than one drawing open, this dialog will be repeated for each open drawing, or drawing page.

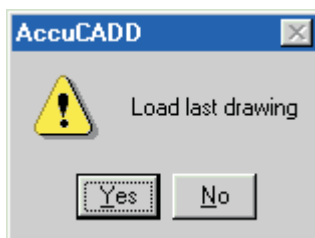


The dialog is only a warning—it does not do anything by itself. If you have not saved your drawing, click No and Accucadd will continue, allowing you to save your work. If you are sure your work is saved (or you don't wish to save it) click Yes.

Accucadd creates periodic automatic backups of your work, but you should not rely on this feature to preserve your drawings, particularly if others use your computer, as it is only the most recent drawing(s) that is (are) saved.

Auto-load

When you start up Accucadd, it will offer to re-load the last drawing you loaded from the library.



This palette is presented; select **Yes** to re-load the last drawing, or **No** if you don't wish to do this.

Errors and Warnings



Accucadd reports errors and warnings to you in a message window that appears on the screen when needed. When you have read the message, click the button to remove it and continue.

Most errors are not fatal — you can take corrective action without losing work already done. There is a list of error and warning messages in Appendix H of this manual, “Error and Warning Messages”, with guidance on what to do to recover from them.

Accucadd also issues warning messages when you are about to take some irrevocable action. For example, using Edit: Wipe will destroy any work you have not saved. Warnings are issued in the Accucadd warning palette.

The warning palette always has **Yes** and **No** buttons. Click **Yes** to proceed, or **No** to cancel the action and return to whatever you were doing previously

This section introduces some of the concepts used in drawing with Accucadd and provides a background for the reference material which follows it.

Keyboard Input For basic use, Accucadd is controlled with the mouse. This is used to enter positions, by clicking the button when the cursor is at the required location. Sometimes you'll need a number, for example, to enter a scale, a zoom factor, or a grid display. To do this you'll use the keyboard.

You'll also need the keyboard for precision work: you will need to enter lengths, angles, and coordinates. Accucadd allows you to enter formulas as well as numbers. This is outlined below, and explained in detail under Draw: Keyboard Input.

Entering sizes This is used with simple drawing functions. For example, you can enter the length of a line, the radius or angle of an arc, or a zoom factor in Zoom or Shrink.

To enter a value simply type it in. As you type the first character, an 'input window' appears on the screen, showing your entry. Press **Enter** to have it accepted and used, or **Esc** to cancel it.

For example, if you were using the Elements function, and drawing circles, you would position the center of the circle and click. As you moved the mouse, the program would display the circle's diameter. If you then typed:

4.5" (Enter)

Accucadd would draw a circle 4.5 inches in diameter.

If you've used another CAD system before, you'll notice a difference here. Most CAD systems require you to click an icon or press a function key to alert the program that you are typing in a diameter. Accucadd "watches" what you are doing, and assumes that you are typing the value of what is currently needed: a length, an angle, or other information.

Formulas When you enter a number, Accucadd treats it as a pure number, a distance (or length), or an angle, as needed, and it assumes the current units. You can enter a number and specify the units thus:

24.55" (or 24.55 in) or
27 cm

or enter an angle with minutes and seconds:

25d 23' 17"

Note the use of d (lower case) to represent “degrees”.

You can also enter formulas, in much the same way as with a ‘spreadsheet’ program:

```
(14 + 23 + 88) / 3  
255/127  
250 * (45d 18' 23")
```

Note the use of parentheses. Also note that “multiply” is * and “divide” is / — do not use letter x or the backslash (\)!

For trigonometry and other more advanced functions you can use the Windows calculator, and “paste” answers into Accucadd.

Entering Coordinates

Any drawing function that expects you to enter positions with the mouse can also be used from the keyboard. You can enter position coordinates using units and formulas.

Coordinates can be entered as:

- individual X and Y values (Toolkit: X-Y Coord)
- pairs of X, Y coordinates (from origin, F5; as an offset, F6)
- distance and an angle (from origin, F7; as an offset, F8)

As well as controlling drawing functions, you can create snap points (see below) directly. Snap points created in this way (without related entities) should be thought of as temporary construction points: they are not saved with your drawing. The “Handle” element should be used for points you wish to save. Coordinate entry is described fully under Draw: Keyboard Input.

Library index selection

You can select drawings from the library using the keyboard. This is described under Library: Load.

Computer graphics

All computer graphics systems use numbers to store and work with “pictures”. Two basic techniques are commonly used for storing pictures; they have different advantages and drawbacks, and are used for different applications.

Vector data

Vector data consists of coordinates — usually ordinary X, Y coordinates — and lines joining them, known as vectors. Quite elaborate systems can be built on this base; Accucadd uses ‘Entities’: collections of coordinates describing lines, arcs, hatched areas, and so on (see ‘Contents of a drawing’, below). All CAD systems use vector data for storing their drawings or models. 3-D modeling systems use three-dimensional (X, Y, Z) coordinates. Dynamic modeling systems may use even more (nine coordinates is typical).

Raster (Bitmap) data Here, a drawing is stored as an rectangular array of dots, and no record is preserved of the individual lines, text characters, and so on which were used to create the drawing. As it is easy to work with, and to make small changes in, raster data is often used for painting programs and other “artistic” purposes. It isn’t very suitable for CAD work, as it lacks precision and makes it hard to “zoom in” on a drawing.

Vector data can be converted to raster data quite easily. In fact, this is done whenever Accucadd displays a drawing on your screen. (Printers also work through rasters, while moving-pen plotters generally use vector data. Large format printers can often use either type).

Contents of a drawing (Glossary) An Accucadd drawing consists of a collection of **Entities**. Entities may be simple objects (e.g.; a point, a line, an arc, a circle), known as **Elements**, or more complex objects known as **Records** (e.g.; Text records, Hatching records). The difference is subtle: Entities have a fixed length; the length of Records depends on what is drawn with them.

Elements and records As you create your drawing, a list of Entities is built up in the computer’s memory. Each type of Element has a specific fixed length, that is, uses a set number of bytes for storage. A Record will be longer or shorter depending on its content. Thus both a 4 inch line and a 300 yard line will use exactly the same number of bytes—just different values for those bytes. The Text Record for drawing the text “Mary” will be shorter than the Text Record used to draw the text “had a little lamb”. Editing a drawing consists of altering the Elements and Records in the list, or sometimes removing them or replacing them with something else. When you zoom, shrink, or regenerate your view of the drawing, Accucadd goes through the list of entities, drawing each one on the screen.

Dimensions Accucadd uses special Entities for dimensioning distances, angles and so forth. These can accommodate all of the drawing standards that Accucadd supports, and any user-defined standard, in the same general style. The dimensioning Entities are described in more detail under Dimension: Entities.

All the Accucadd Entities are summarized in section 3 of this manual, Summary, and described in detail in Appendix E, ‘RDF Files’.

Inserts You can attach extra lists of data (i.e., other drawings) to your drawing. These extra drawings are known as Inserts and are used to supply components for your drawings. The descriptions of the Insert and Library functions in sections 5 and 8 of this manual explain how to use them. Inserts are attached to the main list of Entities by means of special Records, known as Insert Records.

New Data, Insert Data The main list of Entities in a drawing is known as the New Data. Inserts are not part of this list, but are attached to it by Insert Records in the main list. The Inserts are known as the Insert Data.

Attributes Entities have properties known as Attributes, which are used in drawing them on the screen. For example, most types of Entities can have a Line Style (solid line, dotted line, dot-and-dash, etc) and a Line Weight (thickness of the lines used to draw the Entity). They also have Layer and Color attributes, which require a little explanation (below).

When you are using Accucadd with Accudata (or RoboDATA), another type of Attribute, known as a Drawing Attribute, is used. This is explained in the Accudata Reference Manual.

Drawing size and precision Accucadd Family programs allow very large drawings — potentially up to 1,000,000Mb (1,000Gb or 1Tb). No current Windows computer can work with such huge quantities of data, and current versions of Windows imply a 2GB maximum. In practice the limit will be the amount of memory and fixed-disk space in your computer. Another practical limit may be imposed by the time taken by your computer to process an extremely large drawing. We don't recommend creating large drawings because Windows is much less reliable when competing for memory, and because it can be difficult to make a backup of a large drawing. Previous versions (RoboCAD) limited the New Data to less than 64Kb—this limit has been removed.

Drawing data storage Accucadd stores drawings differently from RoboCAD, using IEEE standard floating point numbers rather than integers. This increases the system's precision from the 7-8 significant figures of RoboCAD 20 to at least 15 decimal digits for distances of about 1 millimeter. In other words, a distance of 1km can be specified to an accuracy better than 10 of a meter—substantially less than the size of an atom. A drawing will require more storage in the new format (about 50% more on average), but the limit on drawing size is so high that this doesn't matter. The new data storage format means that drawing libraries (see below) produced with Accucadd can't be used by RoboCAD. Accucadd automatically converts 'old' libraries — see Appendix D, "Library management".

Accucadd can also exchange drawings via RDF files (see Appendix E, "RDF files"), and can make use of RDF files from earlier systems.

Layers Layers permit a drawing to be divided into logical sections. They behave like the transparent overlay sheets used on a drawing board or overhead projector, but add the virtues of computer-aided-design giving speed, precision, accuracy and range.

For example, a multi-layer printed-circuit board can be handled easily by putting each of its layers onto a different Layer within Accucadd. The outline of the board can be placed on one Layer, the hole num-

- bers, drawing border, part number and materials and other text onto other Layers, and so on.
- Hidden Layers** Accucadd allows you to display or hide each Layer individually, so that your drawing does not get cluttered, while allowing you to check that Layers are correctly aligned by making them visible again when needed.
- Colored Layers** If you wish, you can set and change the colors in which each of the Layers is shown. For example, you could set the PC board outline and holes to a dark color (say dark blue), and draw traces joining the holes in another Layer, set to (say) yellow. This gives a very clear indication of which traces belong in which Layers, and makes drawing far easier in general. You can also set a line style for a Layer, so that everything drawn on that Layer will be shown with the same line pattern.
- Active Layer** Usually, you will have one Layer selected as the `Active Layer`, and all the drawing that you do will be placed on that Layer. If you choose to set the active Layer to one color (or line style) Accucadd will produce an error message if you try to select a different color or linestyle from the status bar or linestyle palette. You will not be able to change color (or line style) while drawing on it. Before you can change to a different color or line style you must first remove the restriction you placed on it. In other words, the Layer has to be set up to allow all colors (and/or all linestyles).
- Dimensioning** Placing a drawing's dimensions on a separate Layer is usually sensible. The Dimension: Set Up function allows you to designate a Dimensioning Layer, which will hold all the dimensions. This is separate from the Active Layer, in effect allowing you to have two active Layers at the same time, one for drawing and one for dimensioning. Although this is a good idea, and recommended, Accucadd does not come set up this way—you must make the change yourself.
- Layer Table** All information about the Layers in use by Accucadd is stored in the Layer Table. You can create, alter and select Layers by altering the Layer Table using the Set Up: Layer Table function which is described in section 4 of this manual. You can have up to 1,000 Layers in a drawing, although few people will need to use that many. You can copy, save, and load Layer Tables as needed using the buttons on the layer table window.
- Colors** Accucadd allows you to select the color you are drawing with, and if you wish, individual Layer colors. This is done using a system of color numbers, to avoid the problem of color names and what they mean. You work with `color 14` (brown) or `color 3` (light green), rather than using the names `brown` or `light green`. Color numbers have no absolute relationships to `real` colors, because the real colors available on different types of color display (monitor) and color printer vary so widely. Generally, "Green" will always be some shade of green, but the



exact shade can vary considerably from screen to screen and from screen to printer.

Seeing the Colors The colors you see on the screen (or print out) are pre-assigned to the color numbers by Windows. To see the colors on-screen, simply click the color patch in the status bar. The colors are arranged in a 16 x 16 grid, with color 0 (black) top left, and increasing left-to-right and then top-to-bottom to color 255 (white) at the bottom right. Clicking on the color patch shows its color number in the 'New Color' box. Clicking the OK button makes that color the one you use to draw. Note that drawing in white on white paper (or in green on green paper!) will not show up; however the drawn data is real, and may print out—see the following.

Printing the Colors Accucadd color numbers are converted to printed colors by Windows and the Windows printer driver. Select File: Print and look at the Options section at the bottom of the print dialog box. Click the Colors button. You'll get a grid of 256 colors again, but this time with a Print button lower right. (Most - or all - of the colors will be black if you do not have a color printer). Click this button, and your printer will produce a color sampler of how each of the 256 colors will appear on your particular printer. If you use more than one printer, try it on each one. There are two different possibilities: RGB output checked, or not checked. Try both, and note any differences for your particular printer. If you have a color printer, but the boxes are black, then you need to update your printer driver. Please note that color rendering is done by Windows and the printer driver - it's not an Accucadd function.

Snap Points, Grids and Traps As aids to precise drawing, Accucadd provides several 'snapping' functions. When in use, these attract the cursor when it comes close to them, positioning it exactly.

'Magnetic' snap points

Magnet On/Off 
Display On/Off 

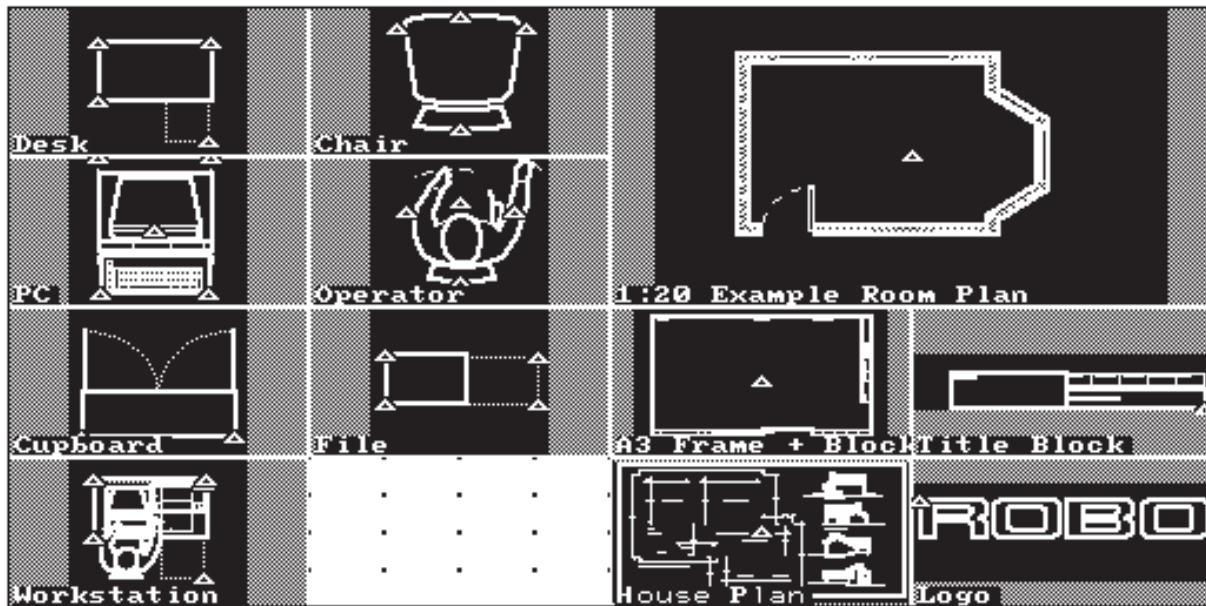
These are created automatically at the end points of lines and arcs, the centers of arcs and circles, and at certain other places, as you draw. Toolkit: Points is the primary function for working with magnetic snap points, and allows you to turn the "magnetism" on and off, and also to turn the snap point display on and off, independently.

Snap points & editing



Note that snap points aren't *always* created at new end points that you create by editing or copying parts of your drawing. Accucadd will create magnetic snap points when editing if you tell it to do so. Press the Edit Create button on the Toolkit: Points palette (see left - it's the bottom button, and shown 'On'). RoboCAD 20 and earlier systems *always* created snap points when editing; with Accucadd this may not be practical if you are using the larger (more new data) drawings that can now be created. A very large number of snap points will slow down operation—although this has been offset to some extent by the very much faster computers now available and in general use.

Manual snap points	<p>Other sources of magnetic snap points include:</p> <ul style="list-style-type: none">• Tangent points, created with TOOLKIT: TANGENT• Midpoints and intersections, created with TOOLKIT: POINTS• Coordinates entered from the keyboard, using Cartesian (F5) or Polar (F7) coordinates. See DRAW: KEYBOARD INPUT.• EDIT: ADD SNAP can create snap points for specific Entities and also for Inserts, or re-create the entire snap list.
The snap list	<p>The magnetic snap points in a drawing are collectively called the 'snap list'. This is saved and re-loaded as part of your drawing. Snap points created by drawing are considered part of the Layer they are drawn on, and are only effective if that Layer is visible.</p>
Rectangular Grids	<p>Rectangular Grids provide a regular array of snap positions. There are two types: the screen centered, which is always rectangular, and the moveable, which is fully configurable and can be set with angled axes—useful for isometric drawing. For details see Toolkit: Snap Grid.</p>
Radial Grids	<p>Radial Grids also provide a regular array of snap positions, but arranged as a series of points equally distant along the spoke of a wheel. They are moveable and fully configurable. You can set the angle (or number of spokes), the spacing along each spoke, and the angle of the entire spoke pattern to the horizontal. For details see Toolkit: Radial Grid.</p>
Traps	<p>Traps provide lines which snap all along their lengths, and are described under Angle Trap, Orth Trap and N-Tan Trap in the Toolkit section of this manual.</p>
Limits	<p>You cannot have a grid and a trap, or two grids, or two different kinds of trap activated at the same time; trying to do this will turn off the previous grid or trap. Turning a grid or trap on or off does not affect the drawing function you are using (e.g., Draw: Elements, Dimension: Arc).</p>
Priority	<p>The order of precedence of snaps is:</p> <ul style="list-style-type: none">GridsTrapsMagnetic snaps
Range	<p>You can set the range of the attraction of all kinds of snaps by using the Set Up: Snaps function. The initial setting is 9 pixels (screen dots).</p>



The Library The Libraries in which drawings are filed are stored on fixed disk or diskette. They consist of `indexes'. Each index holds up to 256 drawings; it is displayed as a set of miniature images of the drawings filed within it, which are placed there by the Library: File (or File: Save) function.

Each index has a **name** and a **number** within the library. A library may hold up to 64,000 indexes, which is more than any reasonable drawing system should require. As a *rough* guide, 64,000 indexes, each one containing 16 reasonably complex drawings (1,024,000 drawings in total), would need 32Gb disk space.

A library is accessed by its `pathname' — the name of its folder (directory) on your disk. There is no limit to the number of libraries that can be used by Accucadd.

Warning: *Do not use Command Prompt commands, Explorer, or other programs to alter the files that make up an Accucadd library. A library is a complex structure and trying to alter it "by hand" invariably causes one or more drawings to be lost.*

Inserts The library is the source of drawings to Insert, of course. A drawing's Inserts, being drawings themselves, can have Inserts of their own. Using several levels of nesting allows you to build up sub-assembly drawings and organize your work.

As each Insert is a drawing, you can load one, alter it and save it back into the library. Doing this allows you to update all of the drawings

which use it as an Insert (“Globally Update” the library). More sophisticated operations with Inserts can be done using the Edit: Isolate and Edit: Explode functions, described in the Edit section of this manual, which explains updating and exchanging of Inserts in detail.

Your copy of Accucadd can make use of libraries created by earlier versions of the system (RoboCAD). Accucadd libraries can’t be used by RoboCAD. The library functions are explained fully in the Draw and Library sections of this manual. Managing libraries is explained in Appendix D (“Library Management”).

Style Catalogs Some Accucadd functions have complicated settings that you may want to re-use fairly often. Accucadd allows you to save these as ‘Styles’. A Style is a small file, only useful to Accucadd. The functions whose settings can be saved in Style files are:

- Draw: Text—The text settings, e.g.: size, font, spacing, justification, etc.
- Dimension: Set Up—The dimensioning settings: leader lines, dimension lines, arrowheads, text and so on.
- Draw: Parallel—The parallel-lines settings: number and position of lines, lineweight, linestyle, Layer and color and so on.

To operate the Catalogs, select the style window on the relevant function’s palette. A small window is displayed with the legends Save and Load. Save lets you save the current configuration of icon settings and window values as a Accucadd Style. Load lets you load one of the Styles shown in the catalog.

Save To save a particular palette configuration as a Style, select Save. You’ll get a standard Windows File: Save dialog, pre-set to the type of catalog you are saving. Type a suitable name into the window and press the **Save** button.

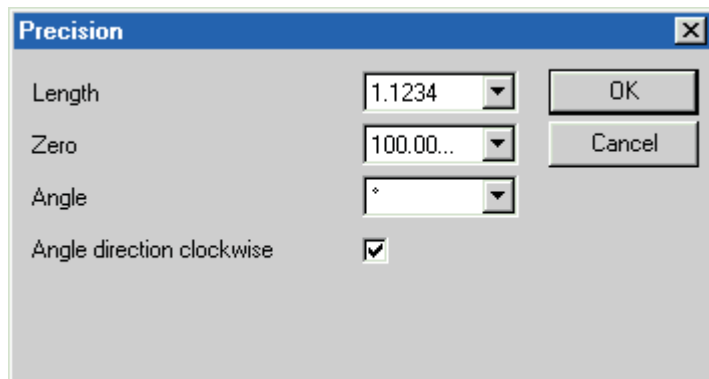
You can overwrite existing styles by positioning the cursor over a style name in the catalog and clicking the button. A warning palette is displayed which gives you the option of overwriting or aborting the operation.

Load To load an existing Accucadd Style, select Load. You’ll get a standard Windows File: Open dialog, pre-set to the type of catalog you are loading. Position the cursor over a style name in the catalog and click the button to copy it into the file name box, and click the Open button. Alternatively, type the name of the style you want directly into the file name box, and click the Open button.

Selection Catalogs Accucadd Selection catalogs are controls that allow you to select functions or attributes from a long list. The list is shown in a window which you can scroll up or down.

For example in Draw: Text most of the palette settings can be incorporated in a Accucadd Style file as above. The text font is one of these. However, when you select Font from the Draw: Text palette a list of available fonts appears. This list is a Selection Catalog, and it provides you with an easy way of selecting an item—just click the desired item.

Status Windows These windows deal with a group of related settings; they display their names and their current values.

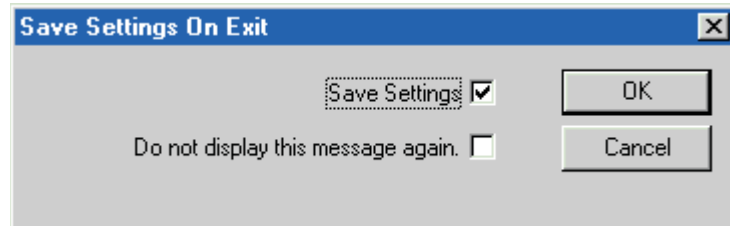


For example, the Set Up: Precision status window shows the precision settings. To change a setting, such as the number of decimal places displayed, click on the “down” arrow next to it. Choose your setting from the drop-down list of possible values. A very common setting is to turn an option “on” or “off”. This is done by check boxes, like “Angle direction...” on the Precision window. Click the check box to display a check mark—On—or no check mark—Off. When you have finished your changes click the ‘OK’ button. To abandon the changes, click Cancel or press **ESC**.

In other status windows, input windows are produced to allow you to enter new values. Some are used by editing functions that can deal with several Entities at once. These display the special control value *VARIABLE*, which is explained under Edit: Text: Change.

Accucadd Default Setup

Accucadd has a 'customization' feature, accessed when you exit the program. This allows you to set up a preferred working environment, and re-use it automatically each time you use the program. To use it effectively, you should work through *all* of the functions and palettes, setting up your preferred environment, and then exit Accucadd. Ensure that the Save Settings box is checked on the "Save Settings on Exit" dialog, then click the OK button.



Note that you do not have to follow through and actually exit Accucadd—the settings are saved as soon as you click OK. To stay in Accucadd just click the "No" button on the following "Work saved?" dialog(s).

Stopping subsequent changes

If you check the "Do not display..." box, and then click OK, you will **never see the dialog again**. This will stop other people from changing the start-up settings. Be sure this is what you want **before** you do it.