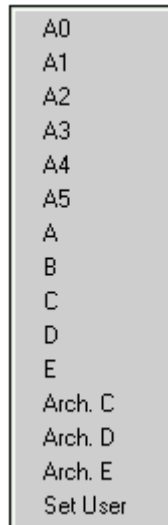


# SET UP

# PAPER SIZE

This function is used to select the size paper you will be drawing on. It can also be accessed by clicking the Paper Size in the status bar.



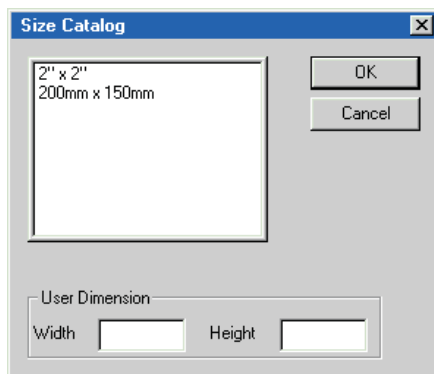
A palette is displayed, listing pre-defined paper sizes, and 'Set User', which is used to define other sizes.

There are six international paper sizes (A0 to A5), five ANSI sizes (A - 8.5 x 11in to E - 34 x 44 in), and 3 Architects' sizes © - 18 x 24 in to E - 36 x 48 in).

For one of these standard paper sizes, select from the palette. For any other size select Set User.

When you select 'Set User', the user-defined paper Size Catalog dialog box appears. You may either select from the paper sizes already defined or enter a new size.

To select an existing paper size, position the cursor over the desired size, click the left hand mouse button to highlight it, and then click OK. If a scroll bar is present you may have to scroll to see all the available paper sizes.



To define a new size, click in the Width box and enter the width, then click in the Height box and enter the height, and then click OK. **You should always enter the units explicitly - even if they are the same as the current drawing units - so that everyone using Accucadd will know what units the paper size is given in.** These may be any supported units, and will be added to the catalog. As soon as the paper size box is full, scroll bars will appear in it.

It is best to select a paper size before you start drawing, so that you can scale your drawing to fit the paper. Otherwise, you may have to print your drawing on larger paper than you originally intended, or use a different scale.

You can change the paper size of an existing drawing at any time without losing any of your drawing. If you reduce the paper size some of your drawing may not be visible, but it is not lost. It isn't generally considered good drawing practice to change your paper size.

If your drawing, grows too large for the paper, the preferred approach is to select a new scale to 'shrink' your drawing to fit the paper.

Accucadd assumes that you will be printing your drawing on the same size piece of paper as you drew it on. If this is not so there are several options available to you including changing the paper size, the scale, and using File: Viewprint.

Conventions: All Accucadd's predefined paper sizes have 'landscape' orientation (i.e. with the longer sides horizontal and the shorter ones vertical). Pa-

per sizes that you define yourself can be either 'landscape' or 'portrait'.

## Advanced

**Size and Scale Conventions** In selecting paper sizes, you can think either in terms of the printed drawing you will produce, or of the object you are drawing. Both techniques allow you to work directly in the dimensions of the object being drawn.

The 'Real Paper Size' technique (preferred) implies working in terms of the printed drawing. You select a paper size (pre-defined or user-defined) on which you will make the print, and set a corresponding drawing scale, so that lengths can be entered and dimensioned in terms of the object's size, with the object fitting on the paper. For example, to draw a rectangular room 20' by 15' on 'A' size paper (8½ x 11 inches), select 'A' size paper and a scale of ½" to 1' (so called 'half scale')—a scale of 1:24. The 20' by 15' room will be 10" by 7.5" on the printed output, but will 'measure' 20' by 15' with all Accucadd drawing and dimensioning functions.

'Notional Paper Size' working always uses the drawing scale 1:1. To do this, use a user-defined paper size onto which the real object would notionally fit. In the above case we might define a piece of paper 24' by 18' to draw our 20' by 15' room on. You will have to change both the scale and paper size of the drawing when it is printed—or use Viewprint.

**Hints:** Accucadd is intended to be used with the Real Paper Size technique. Notional Paper Size has several disadvantages including that the text size, and nib and hatch spacings must be worked out in terms of their size on the real object, rather than their desired size on a printed drawing. This can be awkward when dealing with very large or very small objects. However, this is the way many other CAD programs work, and if you are experienced in using one of them you may prefer it.

**Backward compatibility** Using Accucadd, it is entirely safe to change the paper size of drawings that have been used as Inserts. In previous versions (RoboCAD), this could distort them when they were used as Inserts, but does not happen with Accucadd.

**Paper limits** The limits of user-defined paper sizes are:  
Long side maximum : 20 km (about 13 miles)  
Short side minimum : 0.01 mm (about 0.0004 inches)

The paper size catalog is saved in the file AC\_PAPER.CTT, which is saved in the Accucadd folder (usually C:\Program Files\Accucadd).

This function enables you to specify the scale of your drawing. As with paper size, you should define your scale before you start work on a drawing. It can also be accessed by clicking the Scale in the status bar.



When you select this function, Accucadd prompts you to enter the new scale. Scales are entered in the form (number1):(number2). For example, 1:5, 10:1, 1:3.7 and 1:50000 are all valid scales.

Accucadd will reject scales which:

- Can't be understood (e.g., "1:abc").

- Have one or other value set to zero .

- Pushes the paper size, when considered in the drawing's distances, outside its limits (see Set Up: Paper Size).

If you enter a scale which can't be accepted, Accucadd will ask you to enter a different scale.

**Using Units** You can specify units when entering a scale. For example:

1":1'

Enter

enters a scale of 1 inch to one foot, i.e., 1:12. If you don't specify units for a number, it is assumed to be in the current units — see Set Up: Units.

**Details:** If you are familiar with drawing to scale, you will find scale easy to understand. It works like this: at a scale of (for instance) 1:2, lines will be printed out one-half the size they measure at within Accucadd. So, a six inch line drawn in Accucadd at a scale of 1:2 will print out 3 inches long. A one inch line drawn in Accucadd at a scale of 5:1 will print out 5 inches long. In both cases the correct paper size should be used for printing.

This is just like using a draftsman's scale ruler. To draw a one foot long line at a scale of 1:12 you would use a draftsman's scale ruler with 1" to 1' (or 1:12 or 'one inch') graduations. You would draw the line 1' long *as measured by the draftsman's scale*. If you measure that same line with a regular ruler you will find it is 1 inch long.

Note that if you use File: Viewprint then Accucadd will re-scale your drawing to fit the paper, and so it will no longer be at the scale in which you drew it.

**Effects of Scale** When you enter coordinates or dimensions from the keyboard, or set up grids, the distances you use will be correct in terms of the drawing. Accucadd stores the drawing at the 'correct' or 'real' size, and applies the scale factor when the drawing is printed.

**Warning:** If you have created a drawing of a different 'paper size' to the paper it is to be printed on, you should use Set Up: Scale to change the scale to fit it onto the printer paper. If the drawing scale is included on the

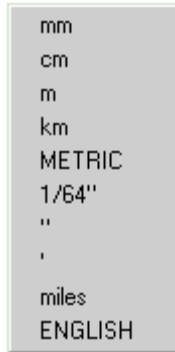
drawing somewhere—it's usually in the title block—be sure to change that to reflect the new scale that you are printing out at. This will avoid the confusion of having a print specify a scale which is not correct. When doing this, make sure the drawing is safely Filed before changing the scale. Then there is then no need to change things back after printing—simply re-Load it from the library.

**Advanced:** When you change the scale of the drawing, the Entities within it which use `paper units` for their size (Text size, and Nib and Hatch spacings) will change size according to the change of scale. If you change scale drastically, this can affect the accuracy of their size; changing scale back again could exaggerate this.

It is possible to draw at different scales on the same drawing, for example, to show an enlarged detail, or a reduced general assembly view. This is made possible by the Dimensioning functions, where you will find more information on this topic.

**Limits:** Scale accepts values from 1:999,999.9 to 999,999.9:1.

This function is used to define the units you will be working with. It can also be accessed by clicking the Units in the status bar.



A palette is displayed listing the units available. Position the cursor over the required unit in the palette and click the button. If you press **ESC** or click the button when you are not over the palette, it goes away and the units remain unchanged.

Once you have selected units, all dimensions and the continuous reporting in box 2 of the status bar (at the bottom of the screen) will be shown in these units. However, you may still input values in any units you like.

The options `Metric` and `English` (Imperial) are general terms meaning that you will be using units in that system, but not any one metric or English unit specifically. The more specific options (e.g. km, miles) mean that you will be working in that unit and in nothing else.

The advantage of working in the more general modes is that when Accucadd displays dimensions, it will convert them to the most appropriate unit. For example, if the current units are metric and you input "5000mm", the system displays it as 5m.

When you use the more specific options, Accucadd always displays values in those units rather than in the more readable form. Thus, with units of millimeters, 5000 millimeters and 5 meters would both be displayed as "5000mm".

**English measure:** When you are working in feet ( ' ), parts of a foot are displayed as decimals of a foot (e.g., 2.5'). When you are working in inches ( " ), parts of an inch are displayed as decimals of an inch (e.g., 1.25"). When you are working in fractions ( 1/64" ), parts of an inch are displayed as fractions of an inch (e.g., 1<sup>1</sup>/<sub>8</sub>"). To have fractions of a foot displayed as inches and fractions of an inch, use `English` units—so 1 foot 3 and one half inches would display as 1' 3½".

The display of fractions is controlled by the precision setting as follows:

| Precision | Rounded to         |
|-----------|--------------------|
| 1         | Whole inches       |
| 1.1       | Half inch          |
| 1.12      | Quarter inch       |
| 1.123     | Eighth inch        |
| 1.1234    | Sixteenth inch     |
| 1.12345   | Thirty-second inch |
| 1.123456  | Sixty-fourth inch  |

**Details:** If you input a dimension without specifying units, it is assumed to be in the current unit. In the generalized `Metric` and `English` modes, inputs without units are assumed to be in millimeters or inches respectively.

**Advanced:** You can change units (and precision) at any time, without losing any accuracy. Accucadd always works internally in millimeters: the conversion from millimeters to current units is done as they are displayed.

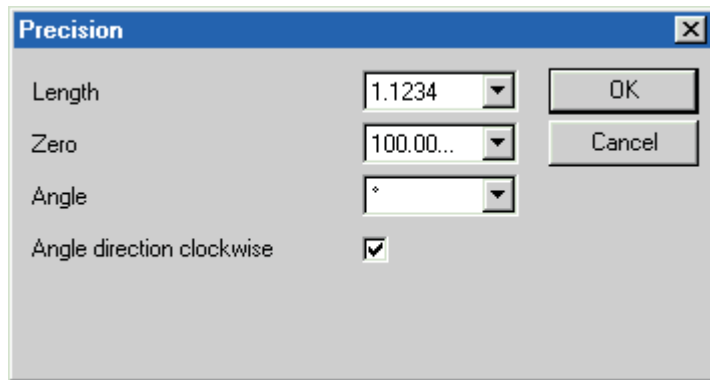
You can change the units of angular measurement. Accucadd can work in degrees (and fractions of a degree), grads, and radian measure. The units of angular measure are selected on the Set Up: Precision palette.

# SET UP

# PRECISION

This function is primarily used to determine the precision with which distances and angles are displayed. It also controls trailing zeroes and units of angular measure.

Precision is controlled with a Dialog Box which has four controls. Three controls are operated by choosing from a set of possible values presented on drop-down lists. The fourth is a simple yes/no check box.



**Length** Lengths can be reported with no decimal places, or up to six decimal places. The number of decimal places also sets the rounding for fractional inch measure.

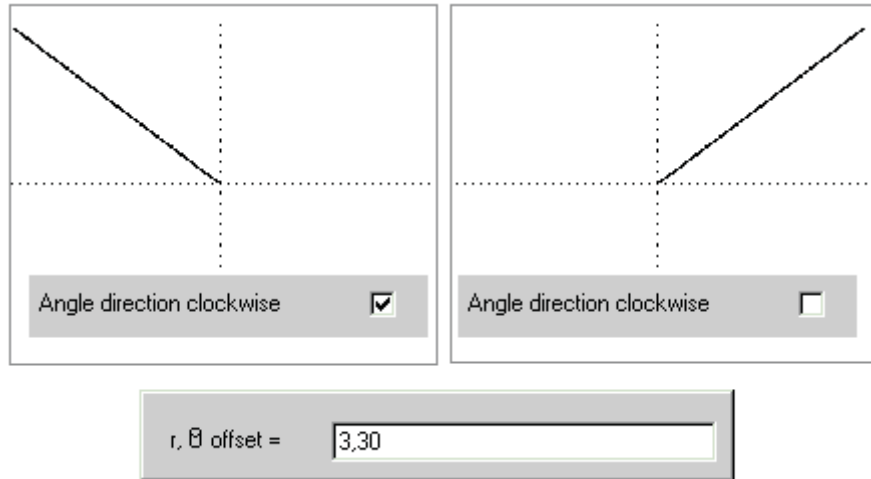
**Zero** This function is *only* used when the measurement is an integer (in the current units), that is, it has no figures (except zeroes) after the decimal point. In this case, the number of zeroes displayed is controlled by this setting. The possible settings have the following effects:

| Zero Setting | Effect  | Display of exactly two inches |                      |
|--------------|---|-------------------------------|----------------------|
|              |   | Precision = 1.1               | Precision = 1.123456 |
| 100.00...    | Zeroes are added until the number of decimal places selected are filled | 2.0                           | 2.000000             |
| 100.0        | Decimal point and one zero  | 2.0                           | 2.0                  |
| 100.         | Decimal point only; no zero   | 2.                            | 2.                   |
| 100          | No decimal point and no zero  | 2                             | 2                    |

**Angle** Angles can be displayed as decimal degrees, radians, grads, whole degrees, degrees-and-minutes, or degrees-minutes-and-seconds. Decimal degrees, radians and grads obey the Length and Zero settings of this dialog.

**Angle direction clockwise** The *direction* of angle measurements is set by clicking the check box ON (check) or OFF (no check). On (checked) means that angles are measured increasing clockwise, **from the left**. This is the most com-

mon drafting convention. Off (no check) means angles are measured increasing counter-clockwise, **from the right**. This is the mathematical convention.



The above drawings show this. In each case, a three-inch line was drawn at an angle of 30 degrees (using F8).

Apply the changes Select **OK** to accept the settings of the precision window, and apply them to the drawing, or **Cancel** to abandon them. Changing the settings does not change anything already drawn: it only affects newly drawn and edited entities.

Details: Set Up: Precision only controls the way in which numbers are *displayed*: it does not affect the precision with which they are *stored*. Numbers *displayed* by Accucadd are rounded to the precision currently set. An example may help make this clear.

Set the precision to 1 decimal place (1.1). Draw, in turn, three lines. Use keyboard entry to set the length. Make the first line 2.250 inches long, the second one 2.300 inches and the third 2.340 inches. Check the length of each of the three lines.

An easy way to do this is to allow the cursor to snap to the start of the line, click, then stretch the cursor to the end of the line, allowing it to snap - *but don't click*. The line length will show in the status bar. (You must be in Draw a straight line, with the magnetic snaps 'on' for this to work properly). When you have noted the length, just press Esc, and repeat in turn for the other two lines. You could also use Dimension: Line if you're familiar with that.

You should find that each of the three lines reads out as the same length—2.3 inches. Increase the precision to 3 decimal places, and re-check the line lengths. You'll see that they are indeed 2.250, 2.300, and 2.340 inches long.

With precision set to 1 decimal place, a line length reported as 2.3 could be anything between 2.2500... and 2.3499... inches long. For this reason, and to preserve your sanity, do not try to draw precise distances using the mouse and the status bar reports! For precise drawing use keyboard input (see Draw: Keyboard Input), or a snap grid (see Toolkit: Snap Grid and Toolkit: Radial Grid).

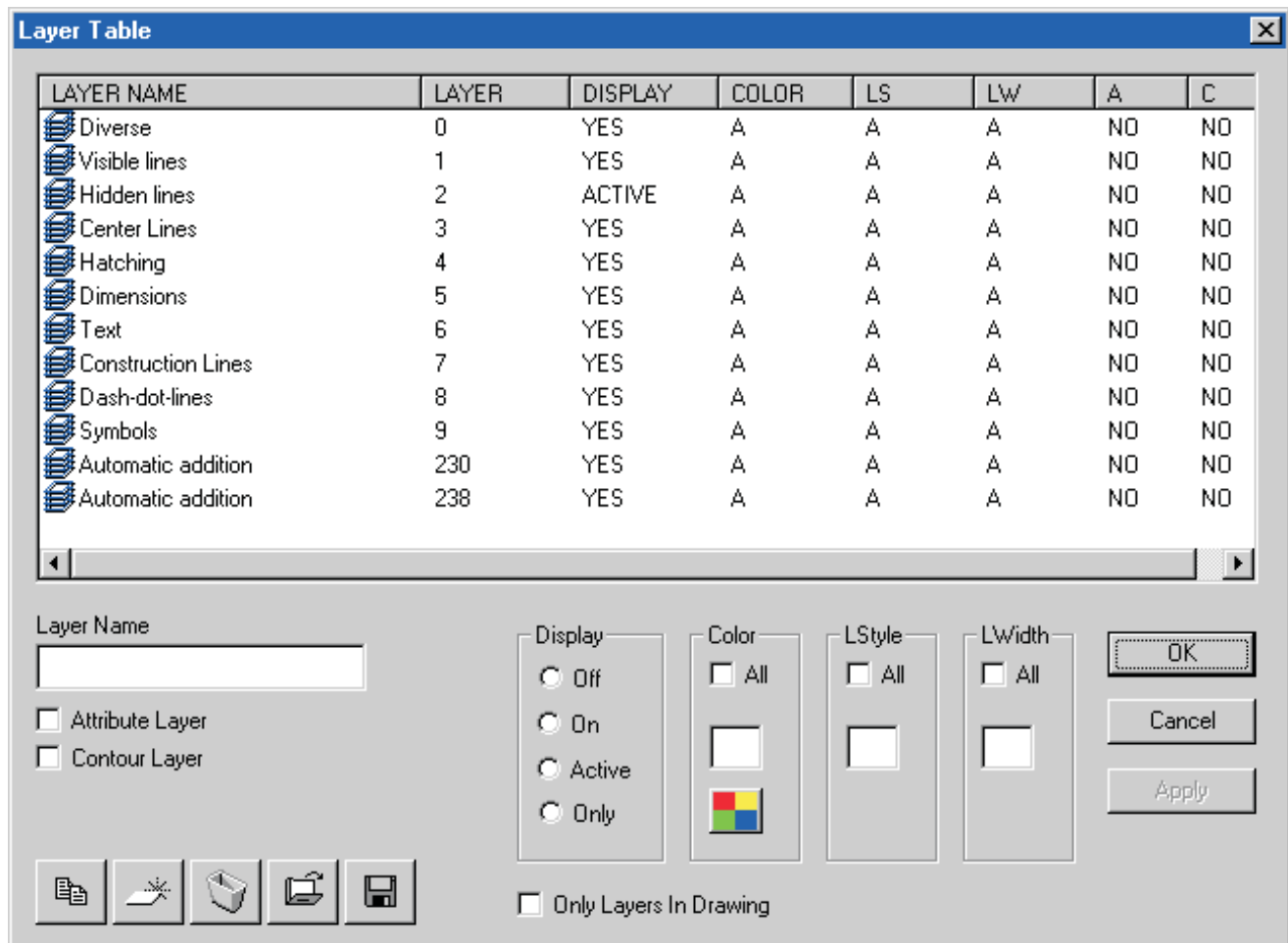
Accucadd uses IEEE standard floating point number representation which is generally accurate to better than 16 decimal digits of precision.

# LAYER TABLE

# SET UP

This function enables you to create new Layers in the drawing, control the way in which each Layer is displayed and to select an Active Layer. Advanced users can load and save different Layer Tables. The concept of Layers is explained in ORIENTATION: Layers, above.

When you select Layer Table from the menu, your drawing is overlaid by the Layer dialog box. This displays information about the Layers, and allows you to alter them. The information is shown as a table — the Layer Table — with each Layer occupying one line of the screen.



**Editing** The layer dialog is in two parts:

- 1 the table of layer names and their current properties
- 2 the controls for setting and changing the layer properties.

To change a layer, use the mouse to click the layer name (in the LAYER NAME column, upper part of the dialog). When you have done this, it will highlight and the name will be displayed in the "Layer Name" box in the lower portion of the dialog.

There are seven properties you can change:

- Layer Name
- Display
- Color
- LS (Line Style)
- LW (Line Weight)
- A (Attribute extraction)
- C (Contour extraction)

“Attribute” is used by Accudata, and “Contour” by Accumill and other CNC packages. Both these settings are discussed in the manuals for those products. Accucadd itself does not use them.

The key property of a Layer is the Layer Number: accordingly you can not change this. (You can move data from one layer to another layer, however: see Edit: Change). The other parameters can be changed at any time while you are drawing.

## Changing layer properties

The first step is always to click the layer name in the LAYER NAME column, to highlight it.

### Layer Name

Click in the “Layer Name” box to edit the existing layer name, or create a new one. The Layer name is used as an aid to remembering its function. For example, you might use names like “Construction lines” or “Dimensions of angles”. You can cut, copy, paste, and type text using the mouse and the keyboard in the usual way. Layer names cannot exceed 32 characters. All printing characters are permitted.

When you select a new Layer from the drawing screen, you can select it by name or number. Don’t use numbers in the range 0-999 as layer names unless they are identical with the layer number – you won’t be able to select the Layers with the corresponding numbers if you do.

### Display

Select from **On**, **Off**, **Active**, and **Only**.

**On** makes the selected layer visible if it’s hidden, setting its entry in the DISPLAY column to YES. Visible Layers are shown on the display screen, printed and generally made use of by Accucadd.

**Off** hides the selected layer and sets its entry in the DISPLAY column to NO. Freshly-created Layers are hidden. You cannot set a Layer to NO if it is the Active Layer; you must make another Layer active first.

**Active** makes the selected layer the ‘Active Layer’. The Active Layer is the Layer on which everything drawn (with the DRAW functions) is placed. There can only be one Active Layer, and it is always displayed.

**Only** sets the selected layer as the Active Layer and hides (turns off the display of) all the other Layers..

If no Layer is set to Active, you cannot DRAW or DIMENSION anything, although you can still LOAD, IMPORT or INSERT.

**Color** Select from **All**, or a specific color.

All means that all colors may be used to draw on that layer. Click on the Color: All check box and notice that it cycles through a check mark, grayed, and no check. With the check mark, the color number box and the color button are grayed. Applying this to the selected layer will make the COLOR property All.

With no check mark, both the color number and color button are active. Type in a color number (0 - 255), or click the button and choose from the palette. Then click the Apply button. With a specific color selected, everything drawn on that layer will be in the selected color.

The COLOR property of freshly-created Layers is always set to 'A'.

**LS (Line Style)** Select from **All**, or a specific style.

All means that all styles may be used to draw on that layer. Click on the LStyle: All check box and notice that it cycles through a check mark, grayed, and no check. With the check mark, the style number box is grayed. Applying this to the selected layer will make the LS (Line Style) property All.

With no check mark, the style number is active. Type in a style number (1 - 8), then click the Apply button. With a specific style selected, everything drawn on that layer will be in the selected style.

**LW (line Weight)** Select from **All**, or a specific weight.

All means that all weights may be used to draw on that layer. Click on the LWeight: All check box and notice that it cycles through a check mark, grayed, and no check. With the check mark, the weight number box is grayed. Applying this to the selected layer will make the LW (Line Weight) property All.

With no check mark, the weight number is active. Type in a weight number (1 - 8, A, or B), then click the Apply button. With a specific weight selected, everything drawn on that layer will be in the selected weight.

If you type in line weights A or B they will be shown in the LW column as (lower case) "a" and "b" to distinguish them from the (upper case) "A" for All.

**OK** When you have made all the changes you wish to make to the layer table, and temporarily saved them by using Apply, click OK to return to your drawing and put the changes into effect. The new settings will be used until you next change them.

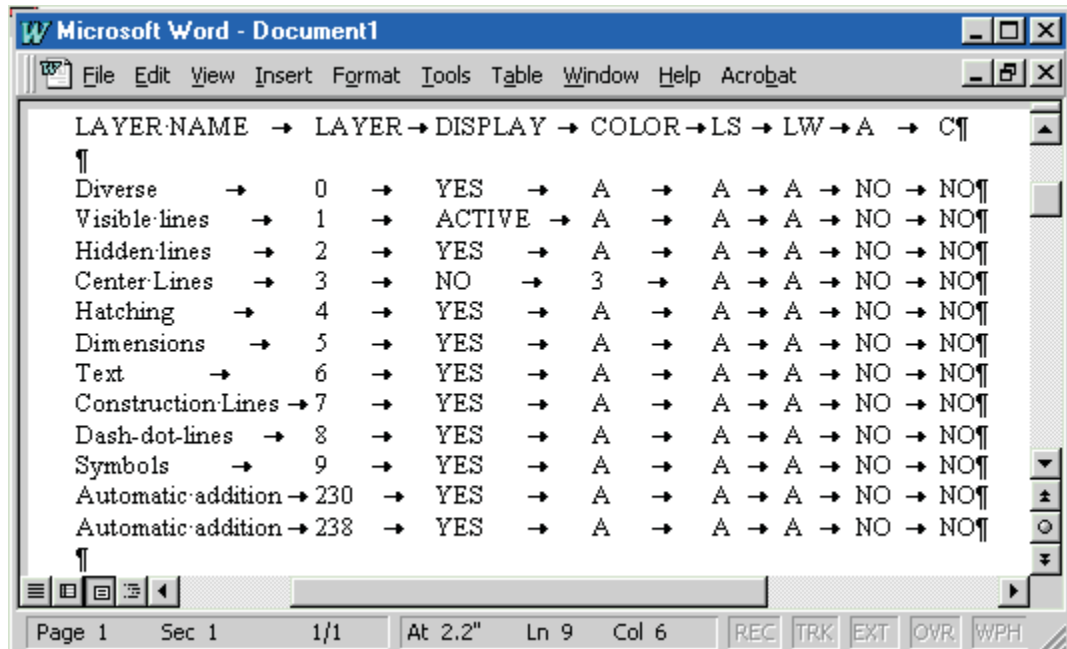
# SET UP

# LAYER TABLE

- Cancel** Click cancel to “forget” all the changes you made since entering the Layer Table dialog. All changes will be lost, even those temporarily saved by clicking Apply. You will continue drawing with the same layer properties you had when you entered the layer dialog.
- Apply** When you have made your changes to a selected layer you must click Apply or they will be lost. The changes you make to not affect the drawing unless and until you click the OK button.
- Other Controls** There is a set of five push button controls, and an “Only Layers in Drawing” check box. These are described below.
- Copy the Layer Table to the Clipboard (as text)** Click this button to copy the contents of the layer table to the clipboard as text.



The layer table text can be pasted into the Accucadd Text Editing window (using Edit: Paste or Ctrl-V), or you can paste it into any other Windows program that accepts text (most do). The layer table text is formatted into columns with Tab characters, as you can see in the Word example, below.

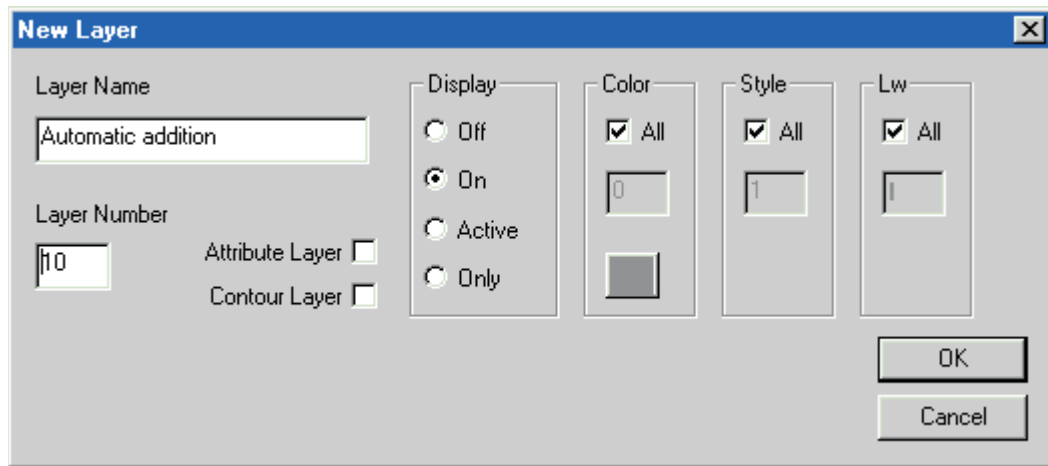


- Create a new layer** Click this button to call up the New Layer dialog box to add a layer to your current layer table. You don't have to select a layer first.



As with the main layer table window, you can set the properties of the new layer you are creating. These controls work just the same, and are described above.

You can also set the layer number. When the box first appears the number is set to the lowest number layer not already in the table, but you can change this to any other layer number not currently in use.



Valid layer numbers are from 0 to 999.

Delete a layer



Select a layer, then click this button to remove it from the layer table. This removes the layer from the table, but does not remove data on that layer from your drawing, which is safe, but can be confusing.

You can also delete the Active layer, in which case the current layer setting will become “OFF” and you will not be able to draw.

Unless you have a good reason, it’s best not to delete layers with data on them, nor to delete the Active layer.

Load (Open) a Layer Table previously saved as a file



Click this to load (open) a layer table that you previously saved as a named file (see below). That layer table will become the current one, replacing the original (which will be lost unless first saved).

There is a lot of data in a layer table, and if you make good use of layers, you will probably want different layer settings for different tasks - even while working on the same drawing. Accordingly it makes good sense to be able to save and recall layer data, as needed, and independently of the drawing itself.

Clicking the button produces the familiar Windows “Save As...” file dialog, which you use in the conventional way.

Save the Layer Table as a file



Click this to save the current layer table as a named file. The current layer table is not changed in any way.

That layer table will become the current one, replacing the original (which will be lost unless first saved).

Clicking the button produces the familiar Windows “Open...” file dialog, which you use in the conventional way.

Only Layers in Drawing

Clicking on this check box only shows those layers that are used in your current drawing (have data on them). This is only a “display filter”

- it does not change the layer table itself. When you return to your drawing by clicking OK or Cancel the effect is canceled.

If you click the Save button, and save the layer table when "Only Layers in Drawing" is checked the entire layer table is saved, not just the layer in your drawing.

## Selecting multiple layers

You can work with more than one layer at a time if you wish. After you have clicked on the first layer name you wish to work with, you can:

hold the Shift key, and click another layer name. All the layers between the two clicks will also be selected.

hold the Ctrl key, and click. The second selection will be added to the first.

You might wish to do this to turn off the display of several layers, or to restore the All setting to several layers, and so on.

If you change the DISPLAY, COLOR, LS or LW properties while more than one layer is selected, the change is applied to all of the selected Layers. If you click the **Delete Layer** button while an area is marked, all the selected layers are deleted.

None of these changes becomes permanent until you have first clicked Apply and then clicked OK.

## Technical issues and Details:

If you set the COLOR, LS, or LW columns of a Layer to a specific color linestyle, or lineweight, rather than `A' (meaning `All'), then all the data that you place on that Layer (draw with that Layer active) will have this color (or linestyle).

With a Layer set up in this manner, Accucadd will prevent you from selecting a different color or linestyle, producing the warning messages "Current Layer is set to a single color (style, weight)."

If you want to have Entities with several different colors or linestyles in one Layer, you must set the color (or linestyle) to `A' while you are creating these Entities.

## Previously drawn data

Data drawn on layers in colors, styles or weights not permitted by the current layer table settings will be displayed with the Layer's color, lineweight, and linestyle. Their own attributes have not been changed, however, and will be shown on the screen again if you return that Layer's appropriate setting(s) to `A'.

## Status Bar

If you use the status bar to enter a Layer number (see section 2 of this manual, under `Status Reporting') then it is selected as the Active Layer. If you type the name of a Layer in the Layer table instead of a number, then that Layer becomes Active. If you enter a number, which is not the number of an existing Layer, then that Layer is created and

selected as the Active Layer. If you type an “N” the current layer is set to None, and you will not be able to draw most things. See below.

|                     |  |
|---------------------|--|
| No Active Layer     | <p>The special case “None” for the Active layer does not seem to be very useful, since it does not allow you to draw most things. So why is it there? The answer lies in the use of Inserts (Draw: Frame Insert and Draw: Drag Insert).</p> <p>If you draw an Insert on specific layers, you probably have good reason for that decision, and you would like that layer structure to be preserved when you place copies of the insert in your drawing. For this reason, the active layer is usually set to None (automatically) while you draw an insert; in this state Accucadd draws the insert on its original layers, creating them automatically if they don’t already exist in your drawing. Such automatically created layers will all be named “Automatic Addition” (see below) but this name can easily be changed if you wish.</p> <p>If you specifically set the layer number while you are drawing an insert – after you have selected it from the library but before you have “planted” it in your drawing – all the data in the insert will be converted (or forced) onto the layer you specify. You need to be able to specify “No active layer” to change this back again when you are done using that special effect.</p> |
| Automatic Addition  | <p>Entries in the current Layer table can also be created by the LOAD, IMPORT and INSERT functions, if they load data into Accucadd that comes from Layers that do not exist in the current Layer table. Such Layers have color ‘A’, line style ‘A’, line weight ‘A’, are named “Automatic Addition” and are displayed, but not active. This allows you to work with drawings made with different layer tables; you won’t see this in operation unless you use such drawings.</p>  |
| Displaying changes  | <p>If you have switched Accucadd’s Auto Regeneration feature on (see VIEW: OPTIONS), your drawing screen will be updated to show changes in the color and linestyle settings in the new Layer table as soon as you leave Set Up: Layer Table. Otherwise, it will be updated when you next regenerate the drawing. If you have changed the visibility of any Layers (changed the DISPLAY setting) this will apply to the screen at once, irrespective of the Auto Regeneration setting.</p>   |
| Accumill, RoboMILL  | <p>Layers are important in creating drawings to be used with companion CNC programs; they are used to indicate the heights or operational groupings. Using them for this purpose is described in the appropriate product documentation.</p>  |
| Default Layer Table | <p>The default Accucadd Layer Table is supplied with Accucadd, in the file <b>AC_LAYER.LFT</b>. Accucadd loads this Layer Table each time it is started, and saves the current Layer Table from memory back into <b>AC_LAYER.LFT</b> every time you perform a File or Save Setup on exit.</p>  |

Wipe does not affect the Layer Table. All the Accucadd drawing pages share the same Layer Table.

**Layer Table Files:** When you save a Layer Table, a copy of the current Layer Table held in memory is made in the selected file. Accucadd won't update that file with any subsequent changes to the Layer Table, unless you use **F2** to save them 'by hand'.

When you load a Layer Table, Accucadd loads that Layer Table into memory, and will save it into **AC\_LAYER.LFT** on the next File or Save Setup. It won't update the original file with changes to the Layer Table, unless you save a new version of the file under the old name.

Accucadd drawings don't contain any note of the Layer Table used to draw them: any drawing can be used with any Layer Table. If you load a Layer Table that lacks layers present in the active drawing(s), Accucadd will create Automatic Addition layers (see above) to serve in place of the missing layer definitions. Normally, you should only load a Layer Table when there are no drawings loaded into Accucadd.

**Applications:** The ability to load and save Layer Tables allows you to use different Layer Tables for different types of work. You might have one table for electrical work, another for plumbing, and so on.

Before starting serious work with Accucadd, you should set up a Layer table for the main Layers used in your work. If you need special Layers for individual jobs, you should use new Layer numbers for them rather than re-using the Layer numbers that are parts of your standard. You could, for example, allocate layers 900-950 for 'ad-hoc' use within each project. The project would then have a layer table of its own, which should be saved as part of the library that holds it (see below).

As mentioned above, you can also use different tables for different classes of work on the same drawing. For example, you might use one table for drawing, and another for dimensioning and annotations. These tables would contain the same layer numbers, but different layers would be set to 'visible'. Loading a different layer table can be faster than making many complex changes in a layer table by hand.

**Conventions:** The default Layer Table is intended as an example of using layers for separate purposes in a drawing. You can use these Layers for the corresponding elements of your own drawings: for example Layer 230, 'Accucadd LIBRARY...SYMBOLS', could be used as the Layer on which you draw your symbols and 'Accucadd LIBRARY ...CONSTRUCTIONS', Layer no. 235, could be used as the Layer on which you draw all of your construction lines and so on.

If you need a blank Layer Table, load **BLANK.LFT**, which is supplied and installed with Accucadd. This only contains layer 1, named "Prime Layer".

Translator programs Accucadd's DXF-RDF translator can modify the current Layer Table (held in **AC\_LAYER.LFT**). If you use this facility, you should save the layer table back into its reference file afterwards.

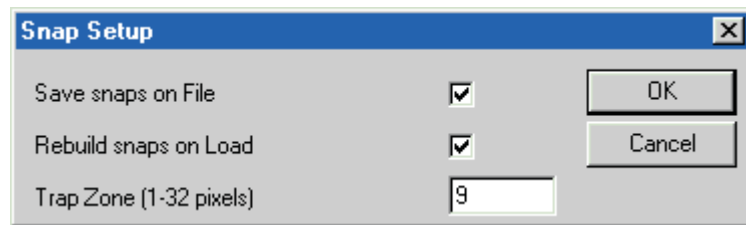
Ad-hoc Layers If you need some 'ad-hoc' layers for a project, than the project needs a Layer Table file of its own. A good place to store this is the library directory containing the project drawings. This makes it easy to find, and ensures that it is backed up with the drawings.

Each user should load the project's Layer Table at the start of each work session, and then use Save Setup to save the Layer Table in their own **AC\_LAYER.LFT** file (possibly in their own User folder (directory)). When you need to add a new Ad-hoc Layer, load the project's Layer Table file, add the new Layer, and then save the new version of the project's Layer Table file. A keystroke macro can be helpful for automating this process

Backward compatibility Layer 0 is intended for holding 'Old' data. When you Import or Load data created with a version of RoboCAD earlier than version 3.0 (which didn't support layering or colors) the data is placed in Layer 0. You can alter the settings for Layer 0 as with any other Layer – its settings are the same as any automatically created Layer. Accucadd uses a new format of Layer Table file which allows layer numbers up to 999. A RoboCAD 20 Layer Table will be converted automatically if it loaded into Accucadd

This function is used to control the snaps you will be working with.

A dialog is displayed showing the current snap settings. There are three settings: save the snaps, load the snaps, and set the size of the trap zone (the “strength” of the snaps). Click over the setting you wish to change. If you press **Esc** or click the Cancel button the palette goes away and the settings are not changed.



**Trap Zone** The trap zone setting is the “strength” of the “magnetic” snap points associated with line ends, circle centers, and so on. It is actually the number of pixels within which the cursor will snap to the point in question. The bigger it is, the farther away the cursor will be when it snaps to the point. Setting it to “1” effectively turns it off (but you should use Toolkit: Points to do that).

Click on the trap zone number, and type in the value you wish to use. You can use the backspace and other editing keys as well as the mouse to position the cursor within the text box.

If you make the value too big it can stop you snapping to the points you want to reach – the center of the radial grid is a classic example. Simply reduce the value.

**Snap List** A snap list is a list of all the snap points in your drawing, expressed in screen coordinates. As you draw, and edit your drawing, you are creating, deleting and changing the snap list. When you Load (Open) an existing drawing, a new snap list is created.

Because the drawing is stored using high-accuracy “real world” units, (in long floating point format), the snap points in your drawing have to be identified, converted from real world floating point to screen-based long integer format, and compiled into the snap list. This takes time, and for a large drawing it is by far the largest part of the time taken to load the drawing. To save you this time Accucadd can automatically save the snap list along with the drawing, and automatically load it again when you load the drawing.

**Save snaps on File** When this is checked the snap list for your current drawing is automatically saved every time you save the drawing itself.

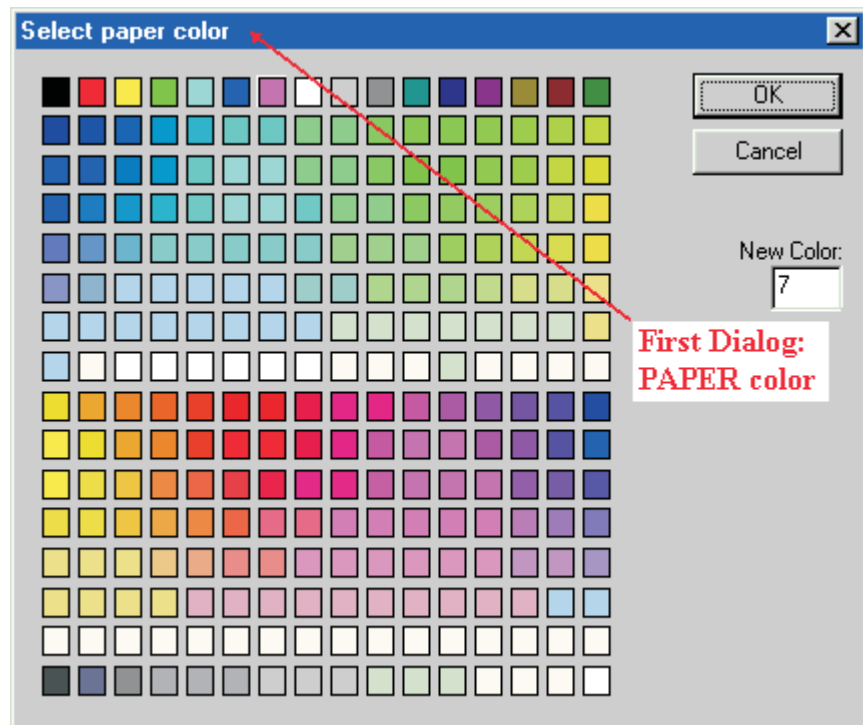
**Rebuild snaps on Load** When this is checked the snap list for your current drawing is automatically loaded, if available, every time you load the drawing itself.

This function is used to select and change two things: the color of the paper you are drawing on, and the color of the cursor. The cursor color is also used for the grids, snap point boxes, and other on-screen markers. ***It does not affect the color you will be drawing with.***

When you select Set Up: Colors the “Select paper color” dialog is displayed showing all 256 Accucadd colors, with the current paper color highlighted in two ways:

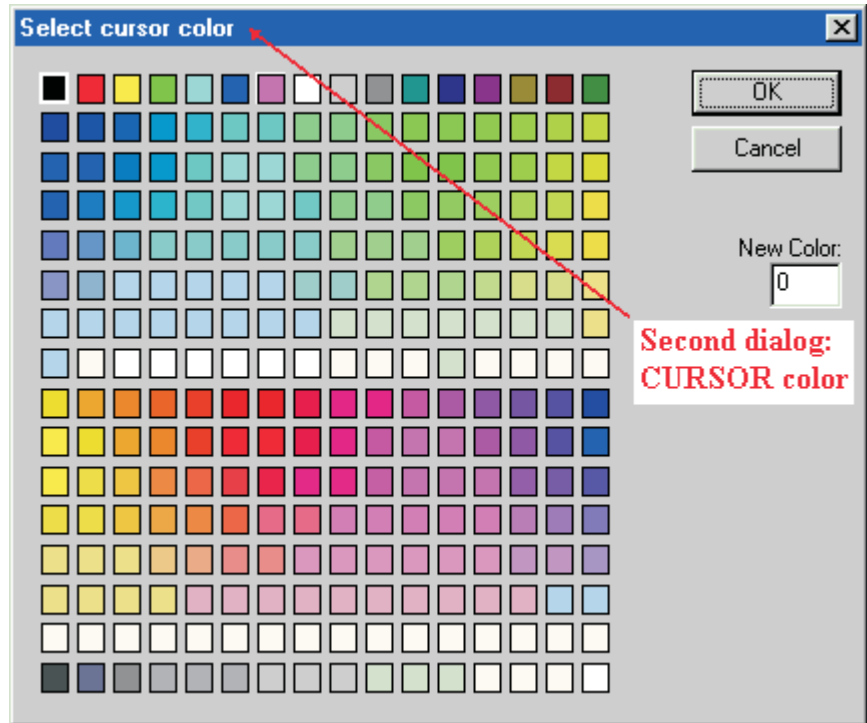
- 1 a white rectangle surrounds the color patch
- 2 the color number appears in the color number box

To change the color, click a color patch, or click the color number box and type in a new number. When you have selected the new color, click OK.



Now the “Select cursor color” dialog is displayed. This looks exactly the same as the previous dialog, but it controls the cursor color. Select

a cursor color to use, and press OK. The dialog is removed and you are back in your drawing.



- Color choice - paper** Generally choose a lighter color such as white or off white. Most Accucadd (and RoboCAD) users draw in dark colors on light paper. Selecting a dark color for the paper may make these drawings difficult to see.
- Color choice - cursor** Generally choose a darker color such as black or dark red. Most Accucadd (and RoboCAD) users draw in dark colors on light paper. Selecting a light color for the cursor may make the cursor difficult to see. As well as the cursors, which include the “rubber-banding” of elements, grids, traps, markers, and snap points are drawn in the cursor color.
- A possible problem** If you set both the paper and the cursor to the same color, you won’t be able to see the cursor against the paper. Since this includes the “rubber banding” of elements as you draw them, it could make drawing difficult to impossible. You won’t be able to see what you are doing because it will be displayed as (say) white lines on a white background. If you follow the above guidelines this will not happen unless you do it by accidentally “clicking through” from the paper to the cursor dialog, and back to the drawing. If it does happen, simply re-select Set Up: Colors and carefully assign contrasting paper and cursor colors.

This function is used to set the scale of the digitizer. This allows you to copy scaled drawings from paper into Accucadd.

When you select this function you are given control of a line cursor exactly like that used in Draw: Elements: Line. Draw a line using the digitizer. The program then prompts you to specify the length of the line on the drawing. This is not its actual length on paper, but the length you want it to represent. Type the length on the keyboard and press Enter. The line is then removed.

The system compares the length you enter with the length of the line you draw and calculates the scaling factor to be applied for future use of the digitizer accordingly. If you want to use a scaled digitizer, it is best to scale it before starting your drawing.

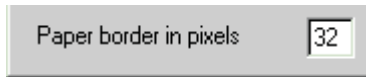
Once you have scaled the digitizer, the system can then scale the incoming data to fit on the paper at the scale selected under Set Up: Scale.

#### A word of caution

Copying drawings in this manner is not very accurate. No matter how careful you are, paper expands and contracts considerably with variations in temperature and humidity. Also conventional copying distorts the image, often by as much as 5%. Right angles will not be right angles, and line lengths will be incorrect. Even if you are copying off Mylar film originals, you are unlikely to achieve better than +/- 0.25mm / .01in accuracy with extreme concentration, or better than +/- 1mm / 0.04in on a continuing basis.

If accuracy is important, consider re-drawing the data - it's often as quick as, or even quicker, than digitizing or editing and correcting a scan-converted file.

This function is used to set the width of the border around the drawing paper. It is most useful if you are working with low (640 x 480) or very high (1280 x 1024 or greater) resolution screens. Accucadd is initially set for a 32 pixel border, which is appropriate for 800 x 600 resolution.



When you select this function you get a simple dialog box with a text box to type in the border value (in pixels). You can use values from 0 to 99. A small value gives a small border—and maximum drawing area. Since the screen is “dynamic,” the exact effect of border can vary slightly. Accucadd has to allow for the Windows Start menu, which may be set to “pop-up,” and also for its own status bar and toolbar. The drawing paper can also vary considerably if user defined. It can be tall and thin (e.g. 1” by 12”) or it can be short and fat (e.g. 12” by 1”). Accucadd tries to center the drawing paper after applying the border and allowing for all these factors.