

Hands On A House Training Manual for AutoSketch V6 SAMPLE

The following is some sample data extracted for the Hands On A House manual produced by Resolve Computing. The manual is a hands on training course that steps through the process of drawing a house. Where normal manuals are a command based structure where they may not be linked to a tasks or routine, this manual specifies the tasks first and then the commands needed to complete that particular scenario.

The manual contains over two hundred pages with exercises and examples of procedures with pictures all the way. All the Exercises are included on a disk so that you can start at any point and practice at your own pace.

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Hands-On a House
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Session 04 – KEYBOARD INPUT

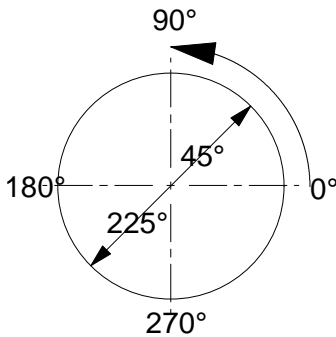
ANGLE MODES

Standard, Compass (NSEW).

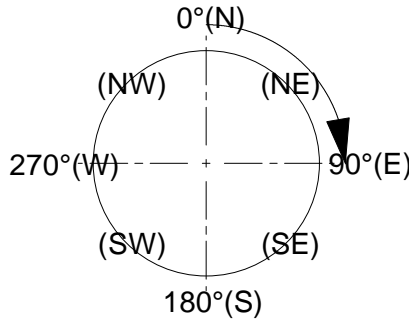
There are two angle modes available within AutoSketch, STANDARD and COMPASS, and these can be selected from within the Tools>Drawing Options commands.

However rather than changing the modes all the time I suggest that the mode be left on Standard (Default). And, when a compass direction is needed use **N, S, E, W** Etc...

Standard mode 0° is to the Right and Anti Clockwise where as COMPASS is 0° Vertical and angles are in a Clockwise direction.



STANDARD



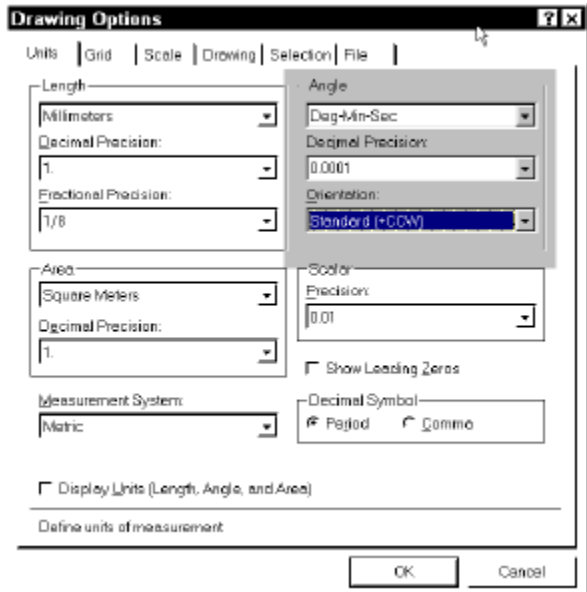
COMPASS

Standard and Compass modes are selected from the Drawing Options dialog.

Select Orientation and either Standard or Compass.

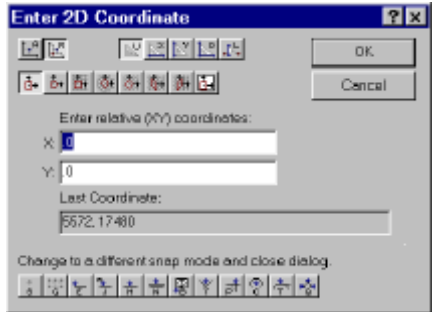
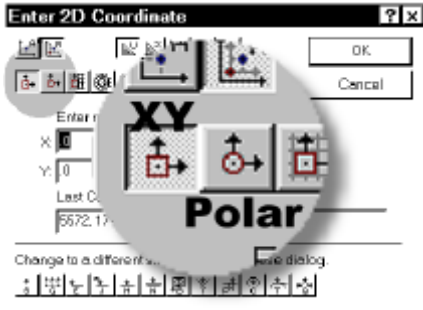
I usually set Angle to Deg-Min-Sec with a Precision of 0.0001.

As we will learn later (if I remember to write it) there are many ways of entering angle notation, so the settings selected here are the units that the system uses in its dialog boxes. You can change these at any time without any disasters happening.



Relative [R]

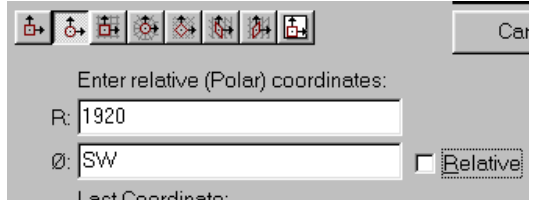
Relative is a keyboard input mode to select points on the drawing relative to the last selected point chosen. Relative mode can be used in either **XY** where two distances are used, similar to map references, plus **POLAR** which uses a distance and a direction with the direction being influenced by the angle modes, Standard and Compass.



The XY and POLAR modes are selected from the second row of buttons in the dialog, and selecting either of these will change the input boxes.

The mode can be changed at any time without effecting the last point that is the relative reference.

The biggest mistake people make is realising that this mode is RELATIVE to the LAST POINT selected, and quite often forget to establish a start point prior to selecting Relative Snap [R]. Therefore generally selecting an existing position or a random start point with Snap Off will precede relative mode. Once a start point is selected press **R**, and the Dialog will highlight in the centre of the screen, which you can move to another location if desired by dragging its title bar with the mouse. Whilst using this method of selecting points, the mouse can be given a spell (and a piece of cheese) as all input will be vial the keyboard.



POLAR

Once a relative point has been established and [R] has been keyed in, Polar mode needs to be set, this is the second button on the second row.

- The DISTANCE is typed into the TOP box R.
- Press TAB to move down
- Insert the DIRECTION in the LOWER box Ø.
- Press ENTER, then repeat this process for continuous lines. The highlight will have moved back to R.

Generally this command will be used with the Draw Line Multiple or Double where continuous lines are needed.

The distances are easiest entered as Alpha compass bearings EG:

[E] East	= 0°	[NE] North East	= 45°
[N] North	= 90°	[NW] North West	= 135°
[W] West	= 180°	[SW] South West	= 225°
[S] South	= 270°	[SE] South East	= 315°

On the Right on the Edit Boxes is a tick box stating Relative, for everything we do this should be left blank. The purpose of this option is to make the last line drawn be an assumed relative bearing of 0°, therefore the next angle Ø will be relative to this line rather than the customary 0° to the right.

LINE DOUBLE

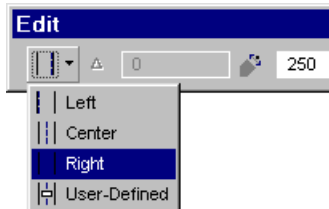
This command draws continuous parallel lines. The user specifies the distance between the lines and the Offset method also needs to be selected.



The WIDTH between the lines is placed into the right hand edit box that appears in the edit bar, and remember to press **[ENTER]** to record your entry.

The OFFSET METHOD is selected from the drop down on the left. Choose from Left, Center or Right. These three options refer to the points selected by the user, so if CENTER is chosen the two lines will be spaced evenly either side of the selected points.

If LEFT is chosen a line will be inserted where you are selecting and the second line will be placed to the right, YOU are drawing on the LEFT.



Therefore if we are drawing around the perimeter of a house in a clockwise direction, we will be selecting distances for the left line a second line will be required to the right. So we would choose LEFT as this will be the side that receives the known distances.

EXERCISE 04a - Draw External Walls - Polar

OBJECTIVE 04a

To draw double lines representing the external walls of a house.

COMMANDS

Line Double – Relative (Polar).

METHOD

After selecting a start point with the double line command, use [R]relative Polar to draw clockwise around the house perimeter.

OUTCOME

We will have drawn the around the perimeter of the house accurately which forms the basis for the remainder of the house.



Open a New Drawing from either the New Drawing Icon or the **File>New** menu or even **[Ctrl + N]**.

- Set Units to mm with no precision 1. And do not display Units
- Set Orientation to Deg Min Sec with precision of .0001
- Set the Scale to 1:100

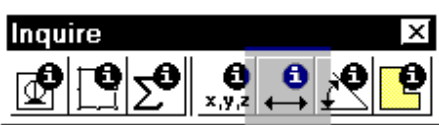
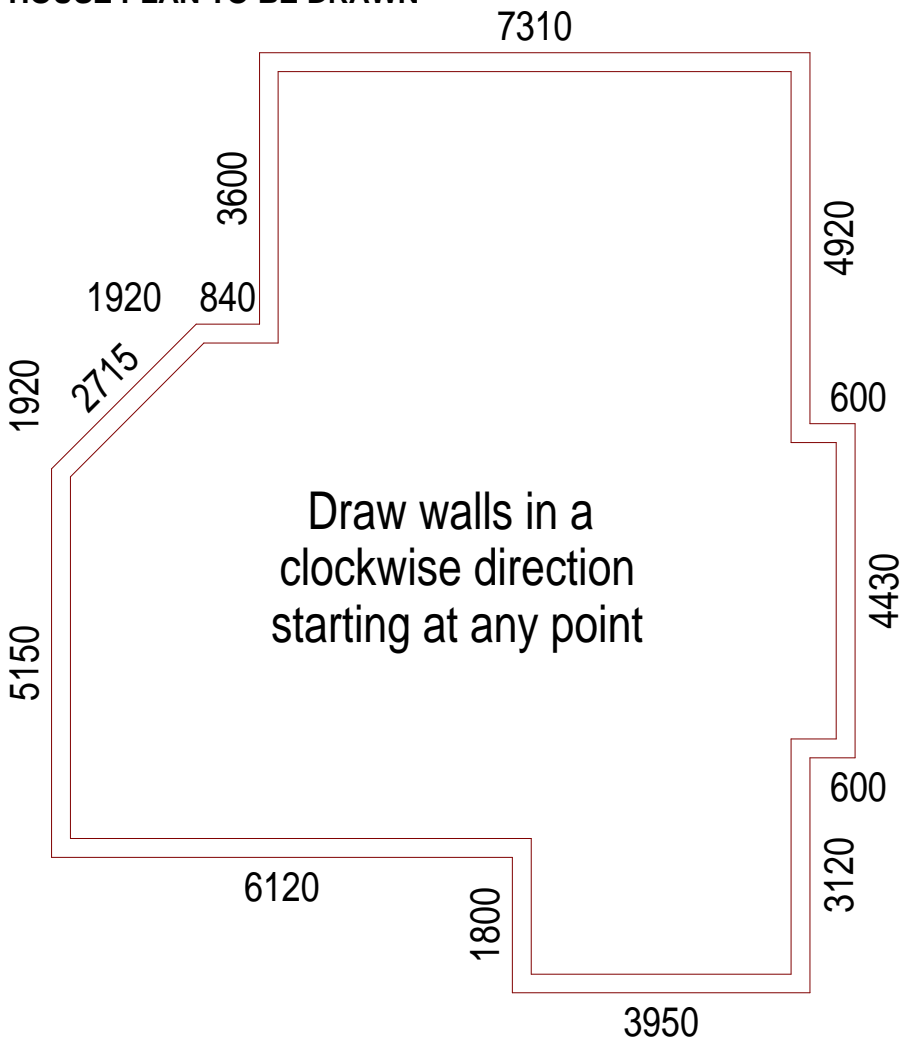
To draw the external walls for the house the **Draw>Line Double** will be used, this command draws a series of single trimmed lines with a second line placed alongside.



Routine for drawing around the perimeter of a House:

- **[S]** Snap Off
- Draw>Line Double
- Edit Bar - select Left and 250mm.
- Select a start point (bottom left).
- **[R]** Relative - Polar
- Insert the first Distance (5150)
- **[TAB]**
- Direction, use compass directions NSEW Etc.... (N)
- **[Enter]**
- Second Distance (2715)
- **[TAB]**
- Second Direction (NE)
- **[Enter]**
- ETC until complete.

HOUSE PLAN TO BE DRAWN

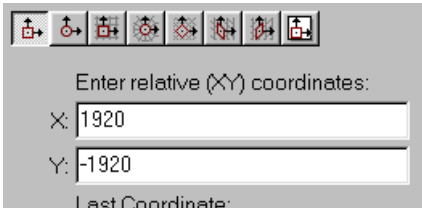
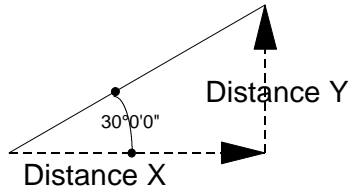
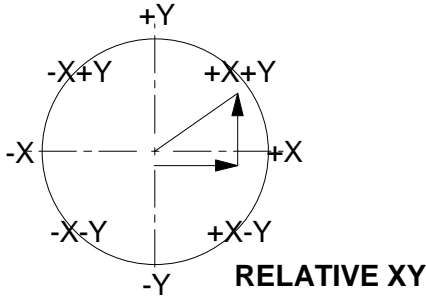


The above command can be used to check if your drawing finishes exactly where it started by choosing Endpoints from the start of the first and end of the last lines

XY

XY input is similar to Polar with the difference being that two distances are inserted rather than a distance and direction. The two distances are firstly Horizontal 'X' and then Vertical 'Y' and in turn these give a distance and from the relative point and the co-ordinate XY. From the relative we move the X distance (Horizontal) and then from this point the Y distance (Vertical).

X to the left is a negative distance and Y down is also a negative distance.

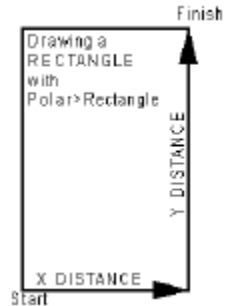


Therefore drawing a line to the bottom right would have a positive X value and a negative -Y value

This command is very useful when drawing lines at an angle when only Horizontal and Vertical distances are

known, as is the case generally with external walls, where all dimensions are given only as Horizontal and Vertical so as to accomplish correct brick dimensioning.

Also when drawing Rectangles using Poly Rectangle the XY method can be used for the Horizontal distance (X) and the Vertical distance (Y).



EXERCISE 04b - Draw External Walls - XY

OBJECTIVE 04b

To draw double lines representing the external walls of a house.

COMMANDS

Line Double – Relative (XY).

METHOD

After selecting a start point with the double line command, use [R]elative XY to draw clockwise around the house perimeter.

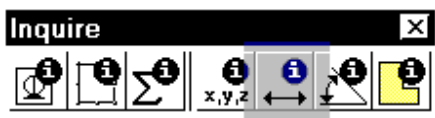
OUTCOME

We will have drawn the around the perimeter of the house accurately which forms the basis for the remainder of the house.

Draw the following house again, this time using only X & Y dimensions.

Routine for drawing around the perimeter of a House:

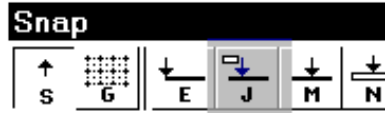
- **[S]** Snap Off
- Draw>Line Double
- Edit Bar - select Left and 250mm.
- Select a start point (bottom left).
- **[R]** Relative - XY
- Insert the X Distance (0)
- **[TAB]**
- Insert the Y Distance (5150)
- **[Enter]**
- Second X Distance (1920)
- **[TAB]**
- Second Y Distance (1920)
- **[Enter]**
- ETC until complete...



The above command can be used to check if your drawing finishes exactly where it started by choosing Endpoints from the first and last lines

JUMP [J]

Jump Snap is a snap mode that most people have been waiting for since earlier versions, it is very simple, your selection point will jump along an entity (Line) a set distance from an end point.



For determining the Distance there are two Jump options, DISTANCE and PERCENTAGE. Distance is set in the units of measurement and PERCENTAGE is the portion of the line segment as the distance. Generally we use distance, but to give an idea 50% in percentage would be identical to Midpoint Snap [M].

EXERCISE 04c – Position windows

OBJECTIVE 04c

To position a symbol of a window on a External wall.

COMMANDS

Symbol Point – Jump Snap

METHOD

Select a symbol and use jump snap to position the symbol.

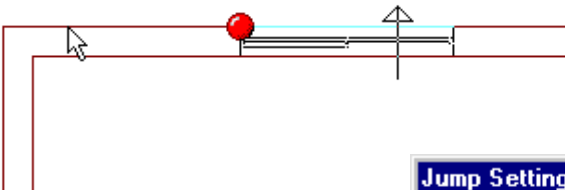
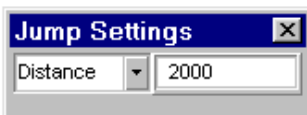
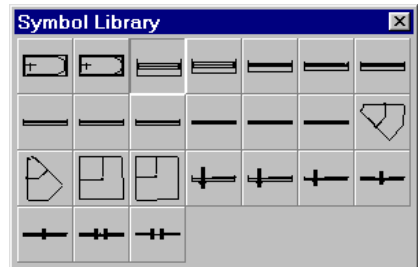
OUTCOME

The window symbols in plan will be correctly located ready for trimming.



Open EX04C.SKF

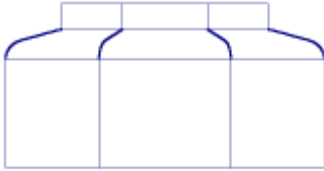
Insert window symbols from the symbol library into the walls. The symbols can be rotated with the [+] & [-] keys on the number pad on the right. Set the JUMP distance to any size and see if you can break it.



If you place a window in the wall from the right, you will also need to add the width of the window to the Jump dimension, and this can be achieved with [=]. The use of the = sign allows calculations to be entered into edit boxes EG. =1210+960. Remember to use [Enter] after inserting the data.



Bull Nose Verandah

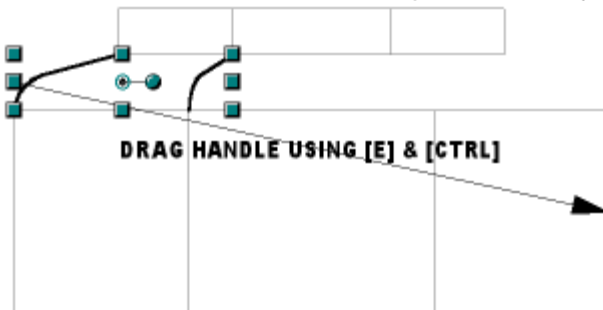
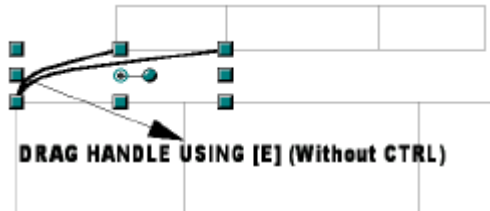
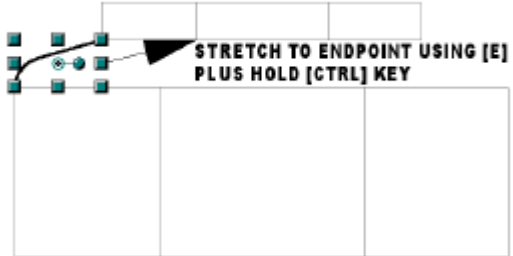


FINISHED DRAWING

We will now drag a line and an arc to complete an elevation of a Bull Nose Verandah on an octagon.

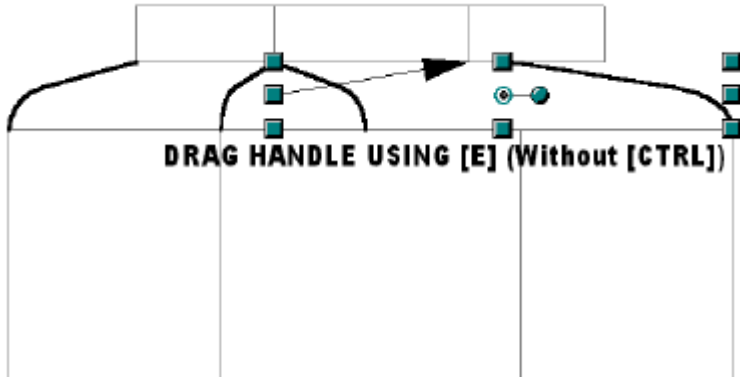
Using Handles and **[CTRL]** stretch the line and arc to produce the drawing as shown.

- 1) Select the entities.
- 2) Select [E] End Point Snap
- 3) Drag to the right, holding the [CTRL]
- 4) Drag the left hand side across as shown, without using [CTRL]
- 5) Two sets of entities now exist but are different shapes.



- 6) Select both sets of entities
- 7) Drag from the left hand side Across to the right, once again holding **[CTRL]**
- 8) Drag the existing selection as shown to finish the drawing.

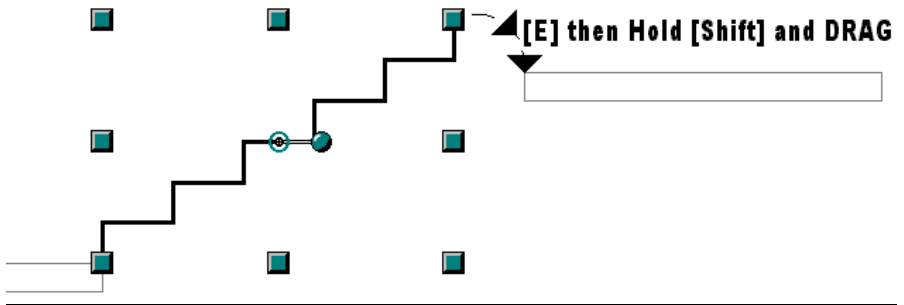
9) The entities have now been mirrored using the mouse.



UNCONSTRAIN

Sometimes it is an advantage to drag the selection handles out of proportion and this can be achieved with the use of the **[Shift]** key. In the following exercise we will drag the top right selection handle of the Stairs down into position whilst holding the **[Shift]** key.

1. Select End **[E]** snap.
2. Select the top right selection handle
3. Hold the left mouse button and the **[Shift]** key then drag into position.



EXERCISE 08b - Draw Door Frames



Open a New Drawing from either the New Drawing Icon or the **File>New** menu or even **[Ctrl + N]**.

1. Set your scale to 1:10 and units as millimetres.
2. Draw a horizontal line, select it then change its length in the Edit Bar to 1570 long.
3. Insert a 50x100 Rectangle on the left-hand side, use **[E]** End point then **[R]** Relative and XY to insert the sides.
4. From the midpoint on the rectangle **[M]** draw two lines, one horizontal **[X]** to the midpoint **[M]** of the base line, and the other from the End **[E]** of the previous line vertical **[Y]** to approximately where the swing will end **[S]**.
5. Use 2 Points and Center Arc to draw the door swing with **[E]**, using Ctrl to swap the centre point.
6. Trim the circle to the line with Trim Corner
7. Offsetting a second line with a 30mm distance to indicate the door.
8. Select only the door frame and swing lines.
9. Using Transform>Mirror, remembering to check 'Leave Original', mirror your selection by selecting the end **[E]** of the swing then another point vertical to this point **[Y]** and **[S]**.

1570 LINE

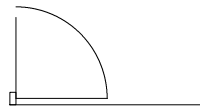
1.

50 X 100 RECT

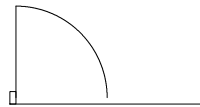
2.



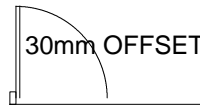
3.



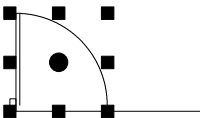
4.



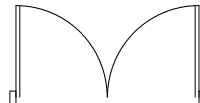
5.



6.



7.



8.

TRACING A SCANNED IMAGE

Drawing over a scanned BMP file can sometimes speed up the drawing process, but bringing a scanned image into a drawing can be tricky for the new players at this game. The problem is that BMP (Bitmap) files are not to scale, so we will need to resize them.

To place the picture onto your drawing select the Picture From File button from the CAD Tool Bar. This will open the Edit Bar and also place a message at the bottom left of the screen.



> [Picture From File] Enter corners of picture (SHIFT: Constrain to image proportions)

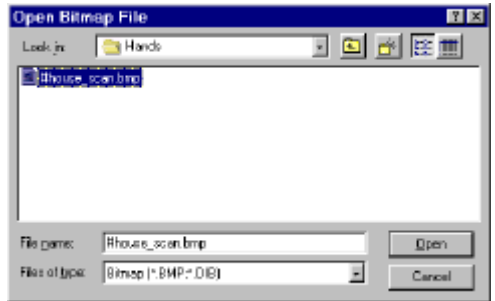
The button to the Right of the Image File box will open the Bitmap Dialog and here you can find and select an Image.



The Image can then be inserted onto the drawing. Holding the [Shift] key whilst placing the image will ensure that it is in proportion.

Scans can be placed onto layers and their layer state changed as per normal entities.

The following Exercise will demonstrate how to resize the image.



EXERCISE 18b – Insert Scan Image (Bitmap)

OBJECTIVE	Insert a BMP file onto the drawing and resize it to scale
COMMANDS	Picture From File – Edit(Bar)>Align Picture
METHOD	Place picture, Draw a rectangle to scale, resize the picture to fit the rectangle
OUTCOME	From here the drafter will be able to bring in scanned images and draw over them as part of their drawing.



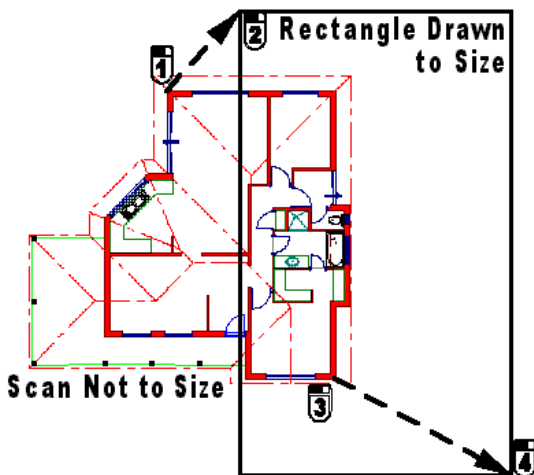
Open EX_18B.SKF

Open the Drawing, there is already a rectangle drawn to size to represent a portion of the scanned image. We will fit the scan to this rectangle and once complete the rectangle can be removed.



The button to the Right of the Image File box will open the Bitmap Dialog and here you can find and select an Image. Hold the **[Shift]** key and use the mouse to place the image overlapping the rectangle.

> [Picture From File] Enter corners of picture (SHIFT: Constrain to image proportions)



Select the Picture, the edit bar will show some new buttons and on the right hand side is an **Align Picture** button.



Next using your mouse with **[S]** Snap off, choose point 1 on the image and then with **[E]** End point select point 2 on the rectangle, then repeat this process for 3 & 4.

Once the image is in position and to Scale the rectangle can be removed.

Also there is a button to the left of the Image file box that will embed the picture into the drawing so that it forms part of the FILE. So by

using this it will enable the file to be copied and moved with out the need to also keep a copy of the original BMP file.

