

AutoCAD® Self-paced Learning Modules
AutoCAD 2D Advanced
Module 13
Attributes

Learning Outcomes:

When you have completed this module, you will be able to:

1. Describe attributes and explain how they are defined and edited in a block.
2. Apply the ATTDEF and ATTEDIT commands to define and edit attributes assigned to blocks in a drawing.

Attributes

An *attribute* is a tag or label that is attached to a block and contains data assigned by the user. The data contained in an attribute can be anything from numbers, prices, colors, etc. Think of each attribute assigned to a block as a column in a data base which can be extracted into a table on the drawing, a spread sheet or in an external document.

Blocks containing attributes are defined and inserted into the drawing by the operator. The data attached to them can be then be extracted. For example, assume you must insert telephone symbols into floor plans of a large office building. The name of the person assigned to the telephone, the telephone number and the office number where they are located are assigned as attribute to each telephone block. After all of the blocks are inserted, you could extract a list containing all the information listed above, sorted by name, telephone number or room number. You are now working smarter, not harder.

Attributes are defined with Tags and Prompts. See Figure 13-1. After the attributes are inserted, they will appear as tags as shown in Figure 13-2. In the figure three attribute tags are assigned. The block is then created including the attributes.

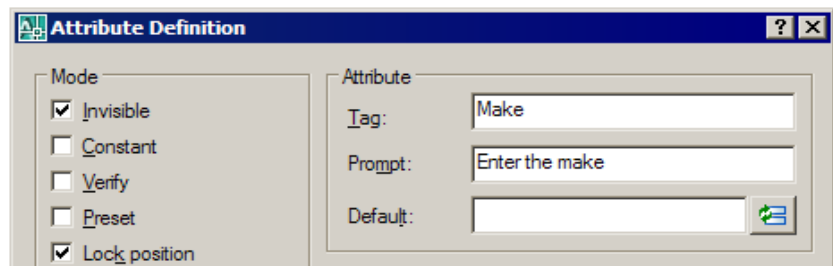


Figure 13-1

Defining a Block with a Tab and a Prompt



Figure 13-2
Attribute Tags

MAKE
COLOR
COST

Once the block is inserted into the drawing and the values assigned to attributes the block will appear as shown in Figure 13-3. The attributes can be visible or invisible.



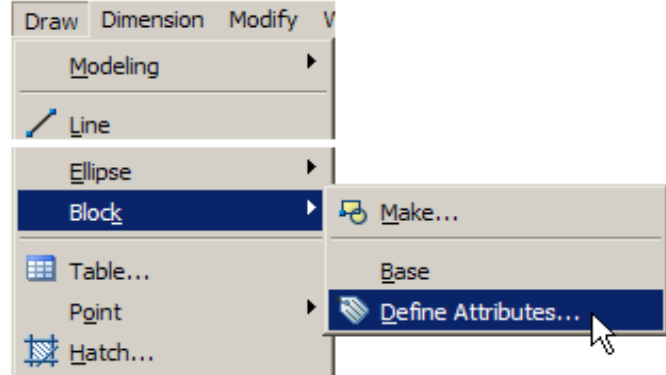
Figure 13-3
Attribute Values

Acme
Brown
249.95

AutoCAD Command: ATTDEF

The ATTDEF command is used to create attribute definitions.

Shortcut: **ATT**

**Creating Attributes**

Step 1 Start a new drawing using the template Template 2D Advanced English.dwt. Check the current profile and if required, set it to AutoCAD 2D Advanced.

Step 2 Save the drawing with the name AutoCAD 2D Advanced Workalong 13-1.

Step 3 Enable Dynamic Input.

Step 4 Using the INSERT command, insert the block Small Office. Use 0,0 for the insert point. Do not scale or rotate the block.

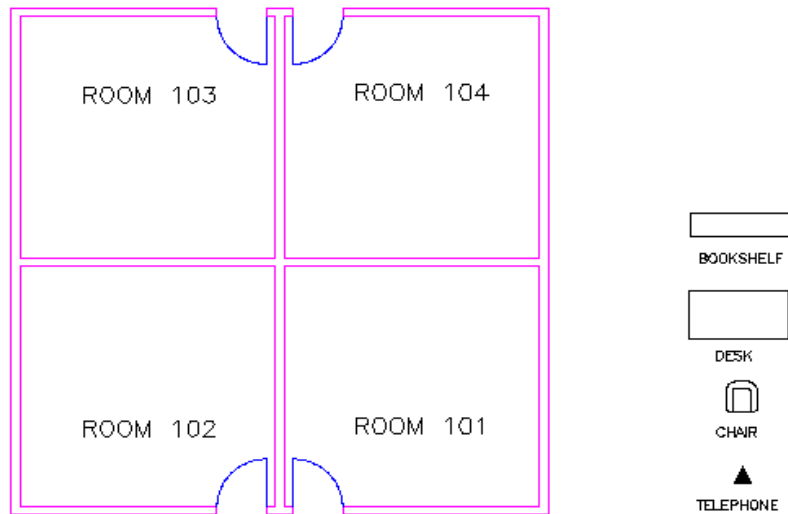


Figure Step 6

Step 5 Zoom the drawing to its extents.

Step 6 Explode the block and your drawing should appear as shown in the figure. (Figure Step 6)



BOOKSHELF

Figure Step 7

Step 7 Zoom in on the Bookshelf. (Figure Step 7)

Step 8 Set the current layer to 0.

Step 9 Enter the command ATTDEF to open the Attribute Definition dialogue box. Set the dialogue box to match the figure. Ensure the Text Height is set to 6.0000. (Figure Step 9)

Author's Comments: Setting the Invisible mode will disable the display of the attribute assigned to the block when the block is inserted.

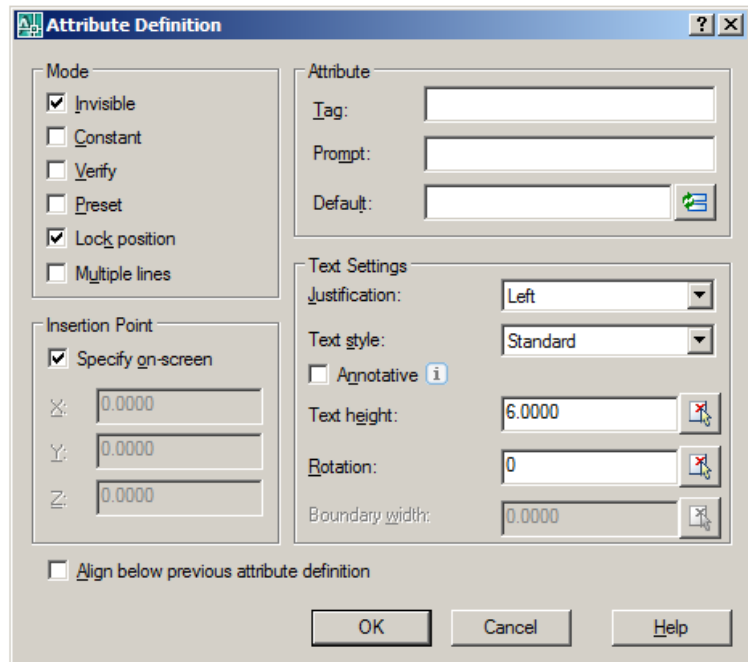


Figure Step 9

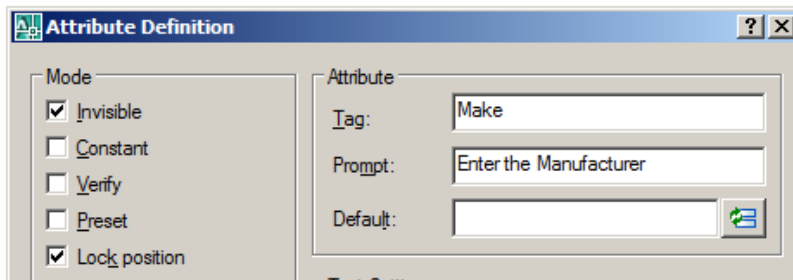


Figure Step 10

Step 10 Enter the Tag and Prompt to match the figure and click OK. (Figure Step 10)

USER TIP

The system variable ATTMODE controls display of attributes. It has three settings.

The default is 1

- 0 - Off: Makes all attributes invisible
- 1 - Normal: Retains current visibility of each attribute; visible attributes are displayed; invisible attributes are not displayed.
- 2 - On: Makes all attributes visible

Step 11 When prompted for the start point, locate the attribute tag beside the bookshelf as shown in the figure. The exact location is not important. (Figure Step 11)

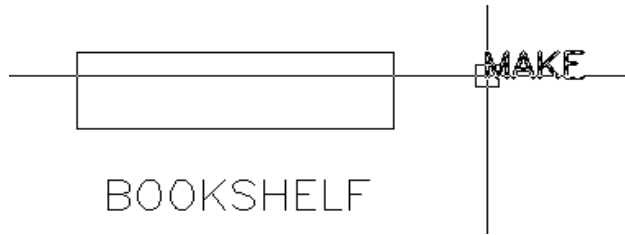


Figure Step 11



BOOKSHELF

Figure Step 12

Step 12 Repeat the same thing for the Color tag and the Cost tag and locate them to match the figure. (Figure Step 12)

Step 13 Repeat the same thing for the other three objects. Note the added Number tag for the Telephone. Your drawing should appear as shown in the figure. (Figure Step 13)



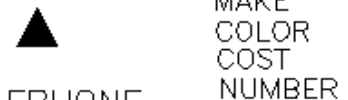
BOOKSHELF



DESK



CHAIR



TELEPHONE

Figure Step 13

Author's Comments: All the tags are the same except for the Telephone. It has an extra tag named Numbers.

Step 14 Enter the BLOCK command to open the Block Definition dialogue box. Enter the name Bookshelf and pick a Base point for the block. (Figure Step 14)

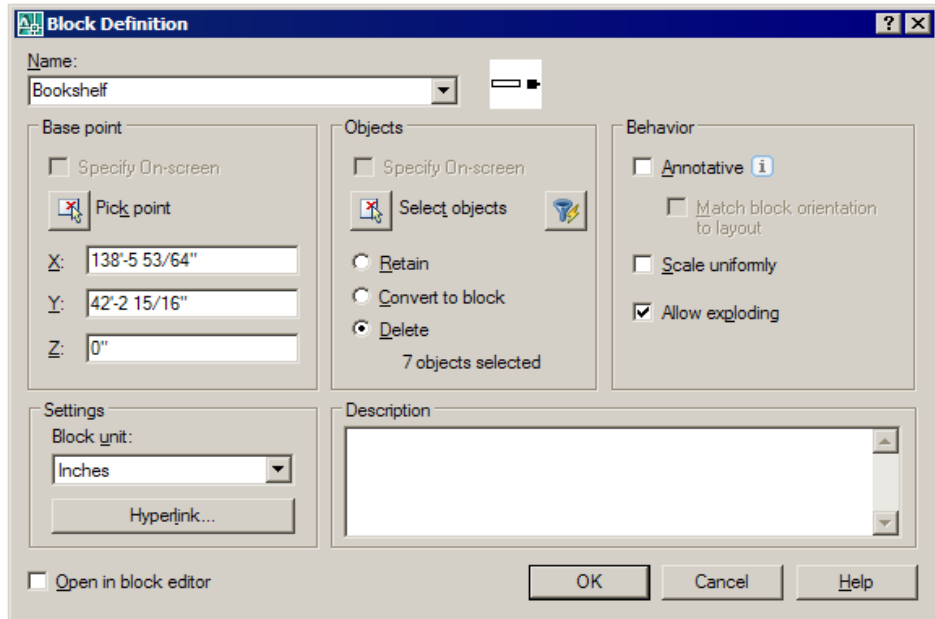


Figure Step 14

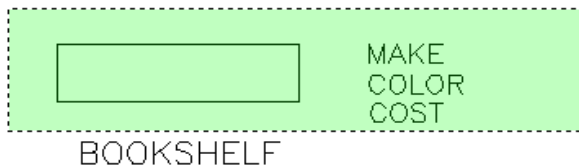


Figure Step 15

Step 15 When you select the objects for the block, select the bookshelf objects and the tags as shown in the figure. It is easiest to select them in a crossing window. (Figure Step 15)

Step 16 Repeat the same thing for the other three blocks. When complete, your drawing should appear as shown in the figure. (Figure Step 16)

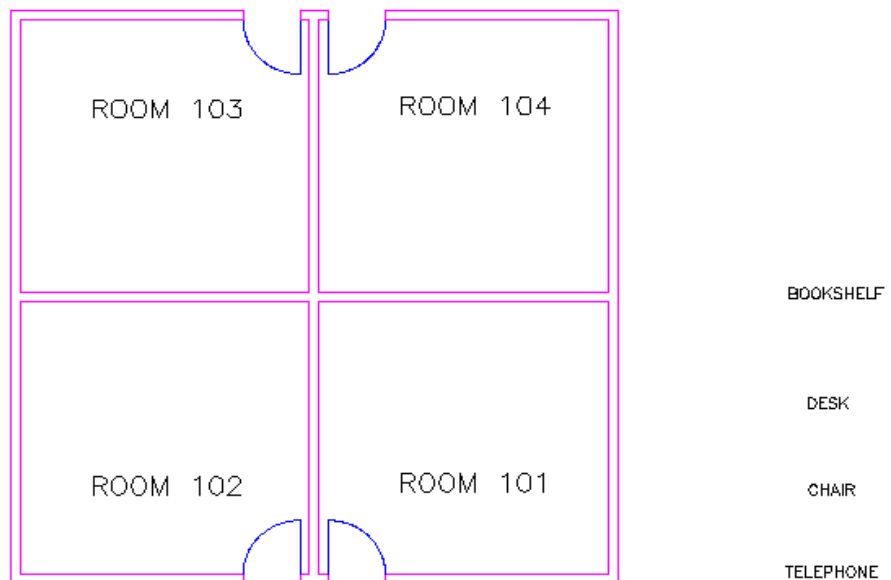


Figure Step 16

Step 17 Enter the ATTDIA system variable as shown below. Ensure it is set to 1.

Command: **ATTDIA**

Enter new value for ATTDIA <0>: 1

Command:

Author's Comments:

The ATTDIA system variable controls whether the INSERT command uses a dialog box or the command line window prompts for attribute value entry.

Step 18 Enter the INSERT command. Set the Insert dialogue box to match Figure Step 18A and locate the block as shown in Figure Step 18B.

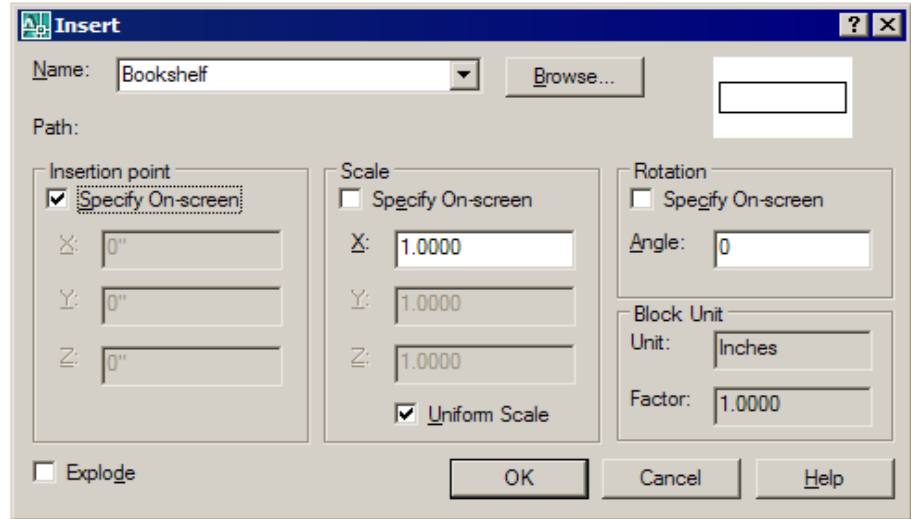


Figure Step 18A

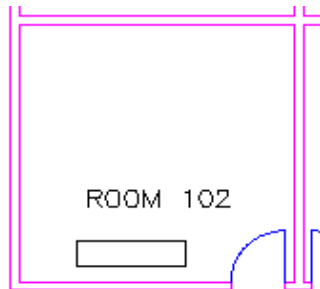


Figure Step 18B

Author's Comments: Locate the block by eye. The exact location is not important.

Step 19 In the Edit Attributes dialogue box, enter the values as shown in the figure. (Figure Step 19)

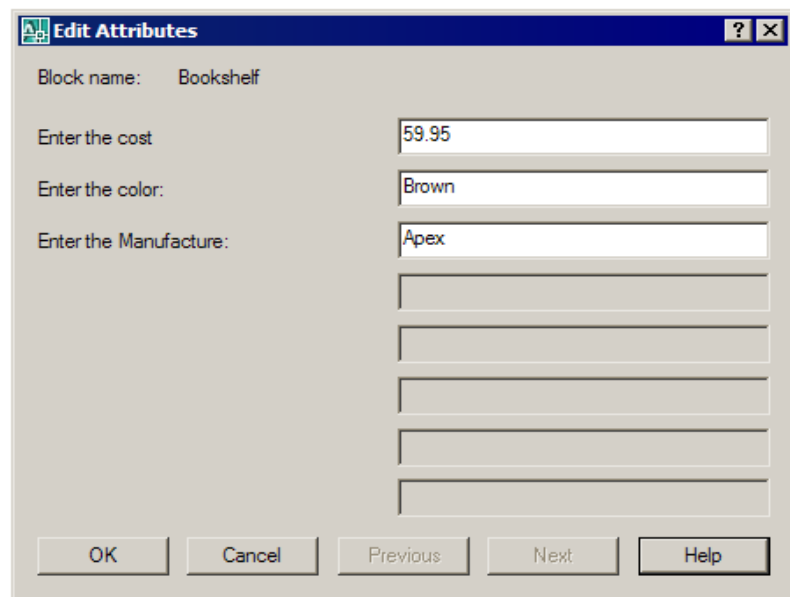
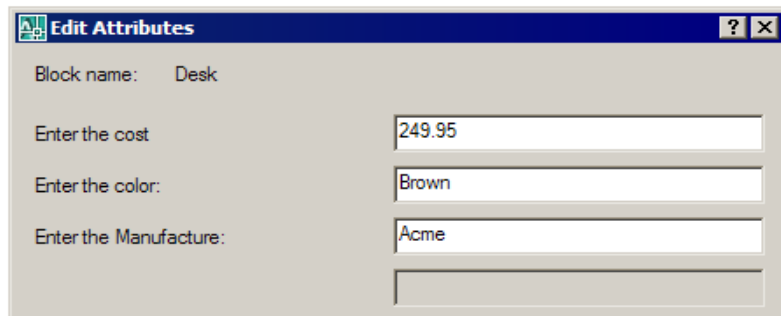


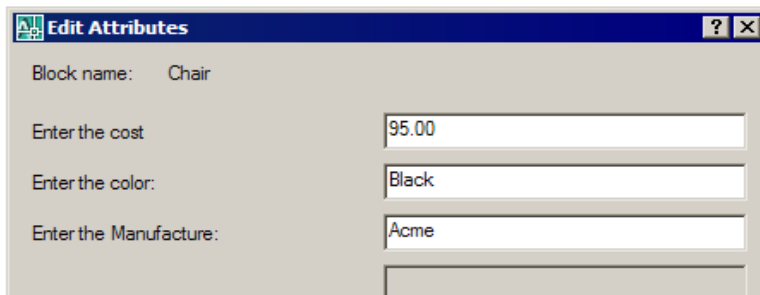
Figure Step 19

Step 20 Insert a Desk, Chair and Telephone block as shown in Figure Step 20D. The values are shown in the figures. (Figure Step 20A, 20B, 20C, 20D)



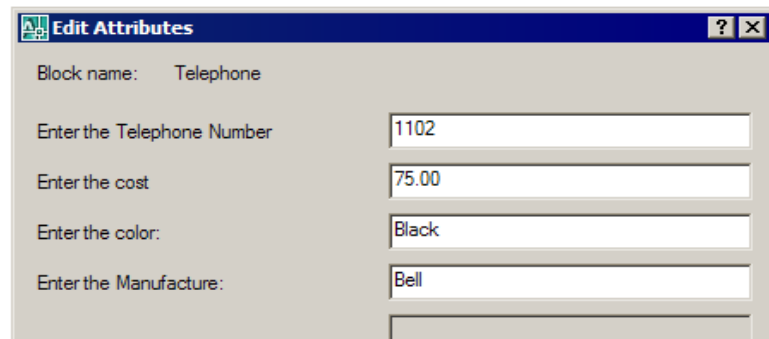
The 'Edit Attributes' dialog box for a 'Desk' block. The 'Block name' is 'Desk'. The 'Enter the cost' field contains '249.95'. The 'Enter the color' field contains 'Brown'. The 'Enter the Manufacture' field contains 'Acme'.

Figure Step 20A



The 'Edit Attributes' dialog box for a 'Chair' block. The 'Block name' is 'Chair'. The 'Enter the cost' field contains '95.00'. The 'Enter the color' field contains 'Black'. The 'Enter the Manufacture' field contains 'Acme'.

Figure Step 20B



The 'Edit Attributes' dialog box for a 'Telephone' block. The 'Block name' is 'Telephone'. The 'Enter the Telephone Number' field contains '1102'. The 'Enter the cost' field contains '75.00'. The 'Enter the color' field contains 'Black'. The 'Enter the Manufacture' field contains 'Bell'.

Figure Step 20C

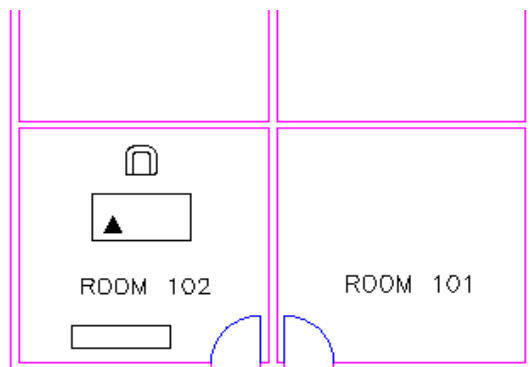


Figure Step 20D

Step 21 Insert one of each block into all of the other offices. Keep the values the same as Room 102 except for the telephone number which is as follows:

- Room 101 - 1101
- Room 103 - 1103
- Room 104 - 1104

(Figure Step 21)

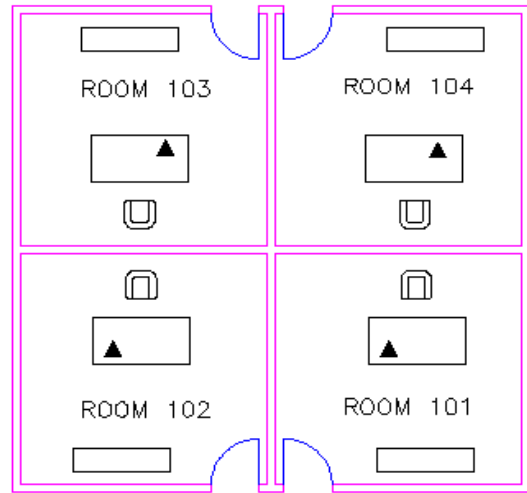


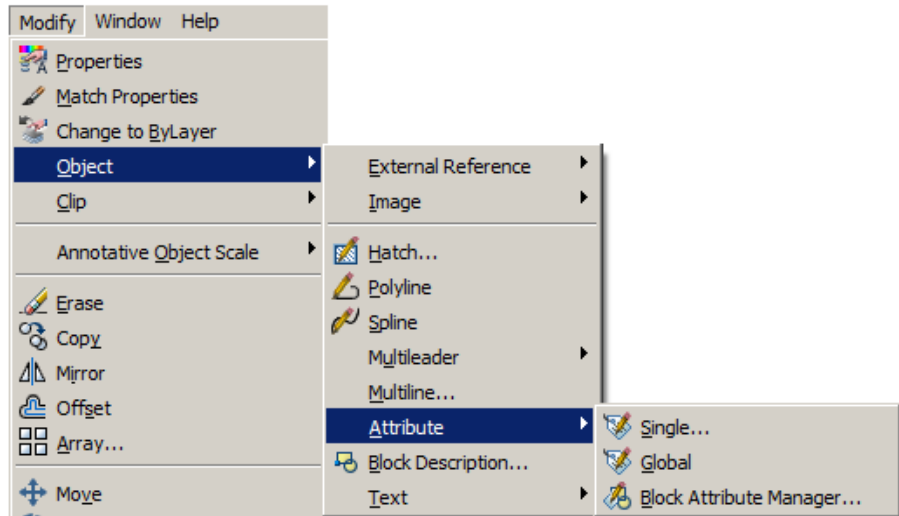
Figure Step 21

Step 22 Save and close the drawing.

AutoCAD Command: ATTEDIT

The ATTEDIT command is used to edit attribute values of an existing block.

Shortcut: None



USER TIP

When a block is exploded, that has attributes assigned, it will convert the attribute values back to the tags. If you want to redefine a tag or add a tag(s), you can explode the block complete the edits and redefine the block and the attributes.



Unexploded Block



Exploded Block

**WORK
ALONG**

Editing Attributes

Step 1 Open the drawing AutoCAD 2D Advanced Workalong 13-1 that you completed in first workalong. Using the SAVEAS command, save it with the name AutoCAD 2D Advanced Workalong 13-2. Your drawing should appear as shown in the figure. (Figure Step 1)

Step 2 Check the current profile and if required, set it to AutoCAD 2D Advanced.

Step 3 Enable Dynamic Input.

Step 4 Enter the ATTDISP command as shown below.

Command: **ATTDISP**
Enter attribute visibility setting [Normal/ON/OFF]
<OFF>: **ON**
Regenerating model.
Command:

Your drawing should appear as shown in Figure Step 4.

Author's Comments: Setting the ATTDISP command to ON will enabled the display of all attributes in the drawing. Setting it to OFF will disable the display of the attributes and setting to Normal will retain the current visibility of each attribute. When set to Normal, visible attributes are displayed and invisible attributes are not displayed.

Step 5 Enter the ATTDISP command again as shown below.

Command: **ATTDISP**
Enter attribute visibility setting [Normal/ON/OFF]
<ON>: **N**
Regenerating model.
Command:

Your drawing should now appear a Figure Step 1.

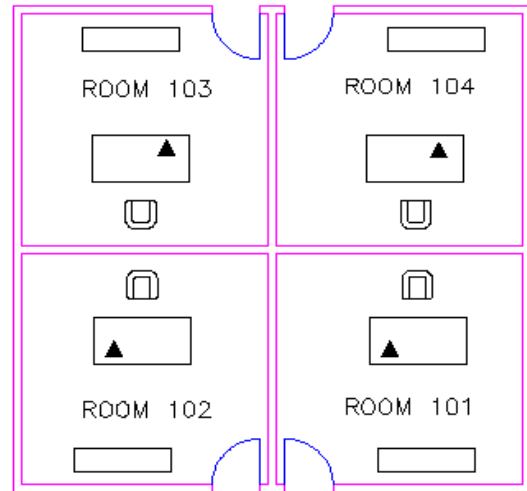


Figure Step 1

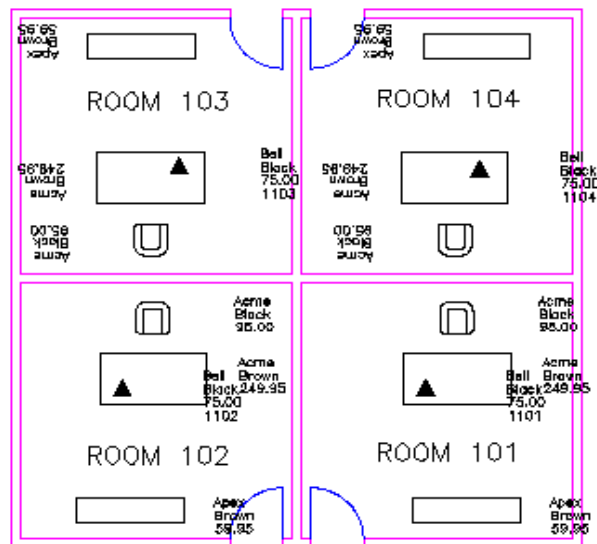


Figure Step 4

Step 6 Enter the ATTEDIT command and when prompted, select the bookshelf in Room 101. This will open the Edit Attribute dialogue box displaying the attributes for that block. (Figure Step 6A and 6B)

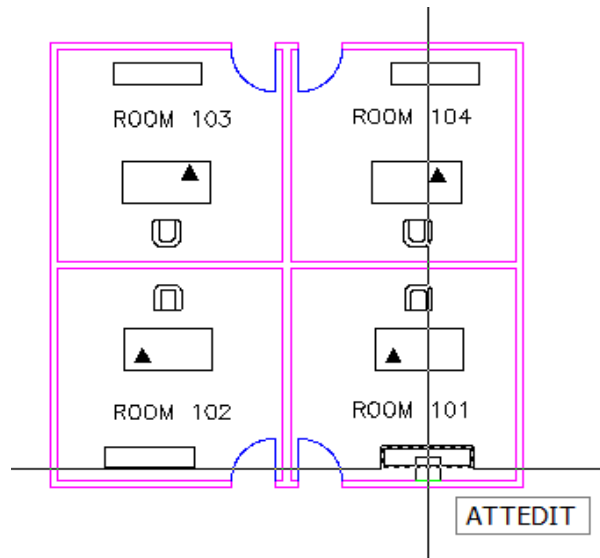


Figure Step 6A

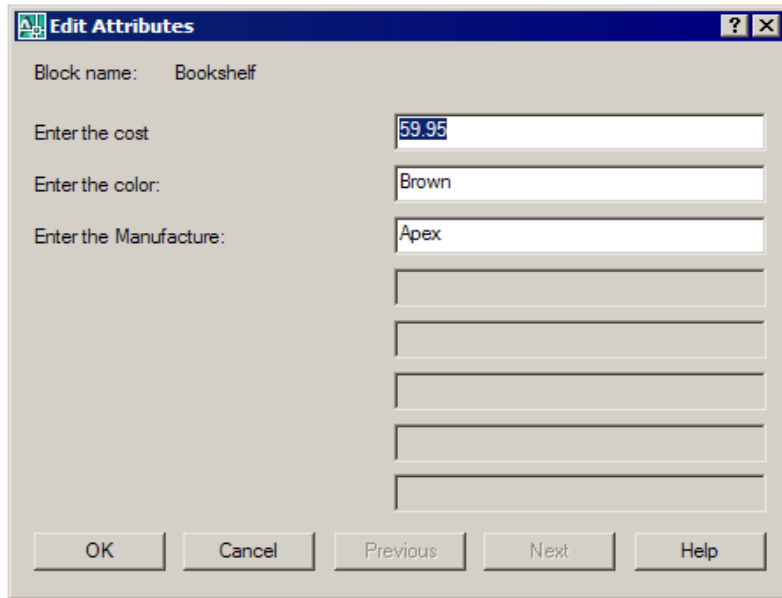


Figure Step 6B

Step 7 Change all three values as shown in the figure. (Figure Step 7)

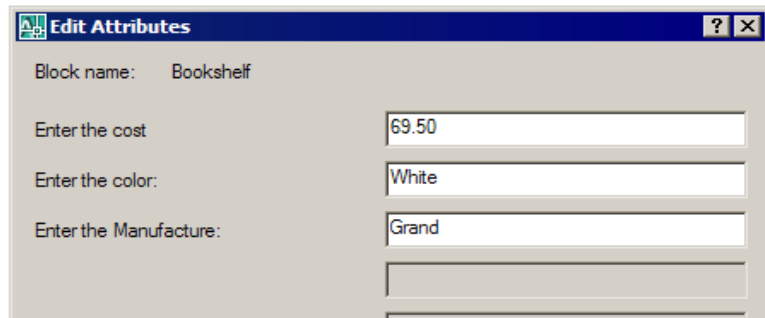


Figure Step 7

Step 8 Repeat the same for the Desk, Chair and Telephone blocks in the Room 101. and edit them as shown in the figures. (Figure Step 8A, 8B, and 8C)

The screenshot shows the 'Edit Attributes' dialog box with the following fields:

Block name:	Desk
Enter the cost	299.00
Enter the color:	Light Brown
Enter the Manufacture:	Grand

Figure Step 8A

The screenshot shows the 'Edit Attributes' dialog box with the following fields:

Block name:	Chair
Enter the cost	125.50
Enter the color:	Red
Enter the Manufacture:	Grand

Figure Step 8B

The screenshot shows the 'Edit Attributes' dialog box with the following fields:

Block name:	Telephone
Enter the Telephone Number	1101
Enter the cost	99.00
Enter the color:	Red
Enter the Manufacture:	Telus

Figure Step 8C

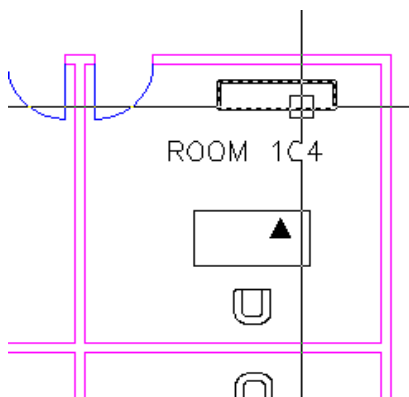


Figure Step 9A

Step 9 Enter the EATTEDIT command and when prompted, select the book shelf in Room 104. This will open the Enhanced Attribute Editor dialogue box displaying the attributes for that block. Repeat for the desk and make the changes shown in the figures. (Figure Step 9A, 9B and 9C)

Author's Comments: The Enhanced Attribute Editor and the Properties window can also be used can also be used to edit attributes.

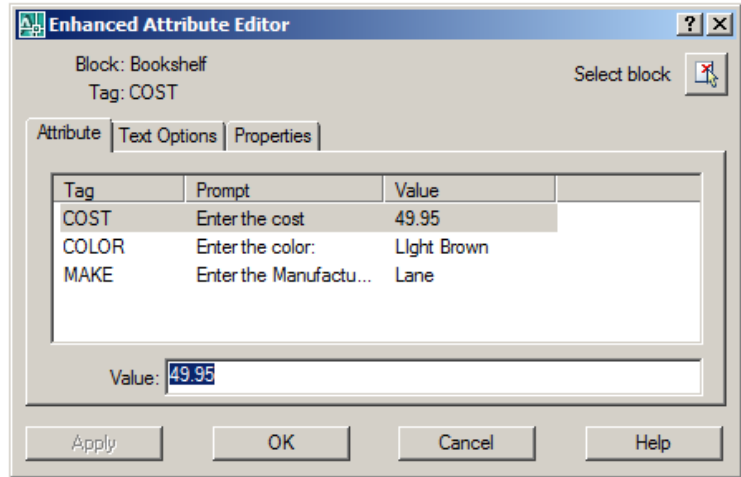


Figure Step 9B

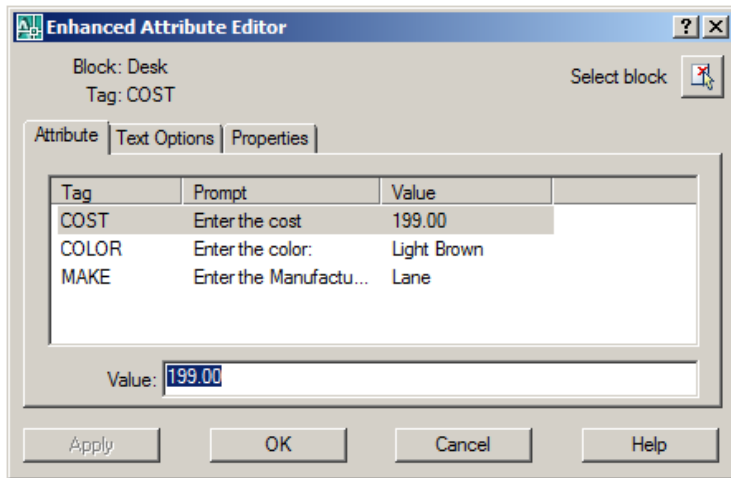


Figure Step 9C

Step 10 Open the Properties window and without entering a command, select the chair block. In the Attributes area, change the attributes as shown in figure. (Figure Step 10)

Author's Comments: As you can see, there are three ways to edit attributes.

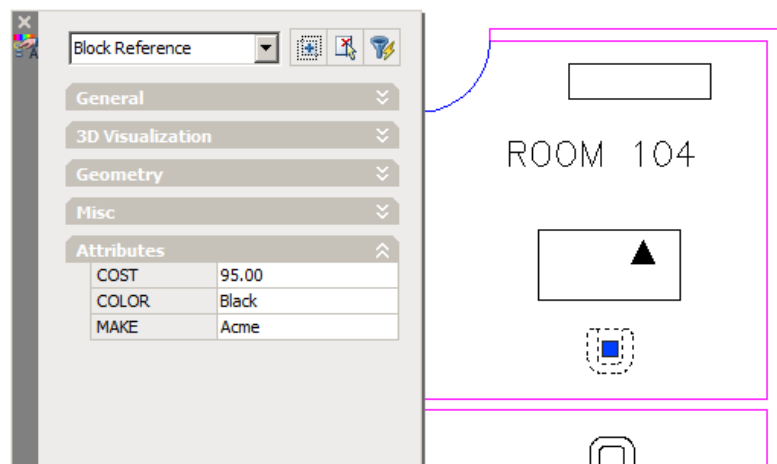
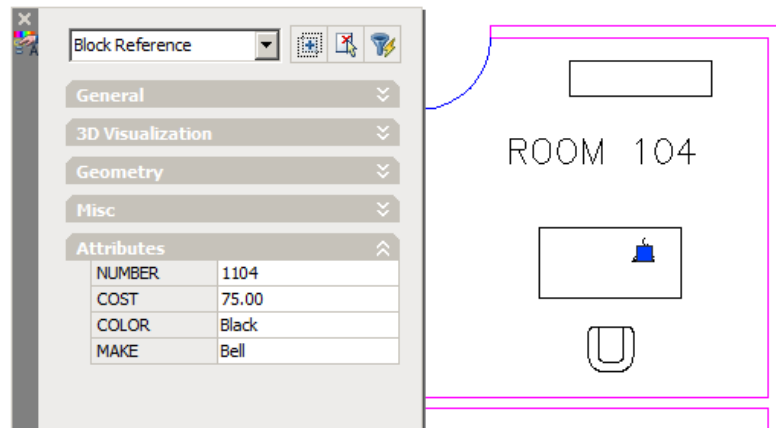


Figure Step 10

Step 11 Select the telephone block and edit the attributes as shown in the figure. (Figure Step 11)



Step 12 Save and close the drawing.

Figure Step 11



The system variable AFLAG sets the options for the attributes.

Type: Integer
 Saved in: Not-saved
 The default is 16

The value is the sum of the following:

- 0 - No attribute mode selected
- 1 - Invisible
- 2 - Constant
- 4 - Verify
- 8 - Preset
- 16 - Lock position in block
- 32 - Multiple lines

The Key Principles in Module 13

1. An attribute is a tag or label that is attached to a block and contains data assigned by the user. The data contained in an attribute can be anything from numbers, prices, colors, etc.
2. Setting the ATTDISP command to ON will display all attributes in the drawing.
3. Attributes can be edited with the ATTEDIT, EATTEDIT and the Properties window.
4. When a block that has attributes assigned to it is exploded it will convert the attribute values back to tags.

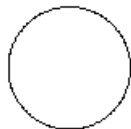
Lab Exercise 13-1**Time Allowed: 90 Min.****Name****Template**

AutoCAD 2D Advanced Lab 13 - 1.dwg

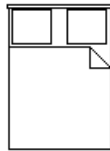
Template 2D Advanced English.dwt

Instructions:

- STEP 1** Start a new drawing using the template shown above.
- STEP 2** Insert the block Floor Plan at the insert point 0,0.
- STEP 3** Zoom the drawing to its extents.
- STEP 4** Explode the block and your drawing should appear as shown in Figure Step 4.



TABLE



BED



NIGHT STAND



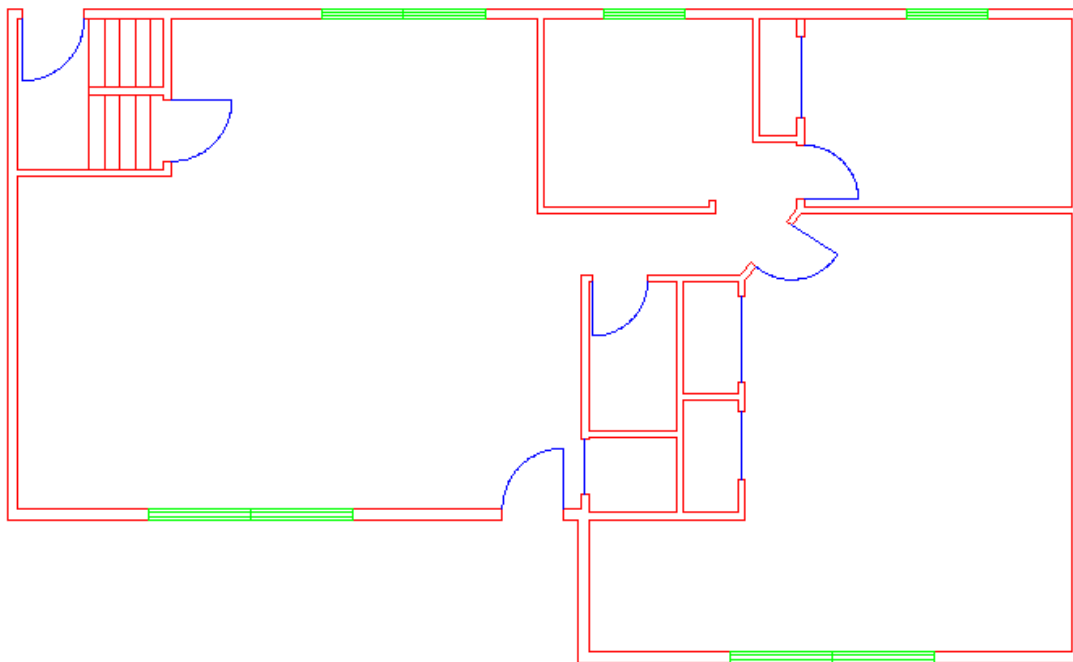
CHAIR



PLANT



CHESTERFIELD

**Figure Step 4**

STEP 5 Using the ATTDEF command, insert the attributes tags shown below, include an appropriate prompt. Set the attributes to invisible. Make a block for each one. (Figure Step 5)

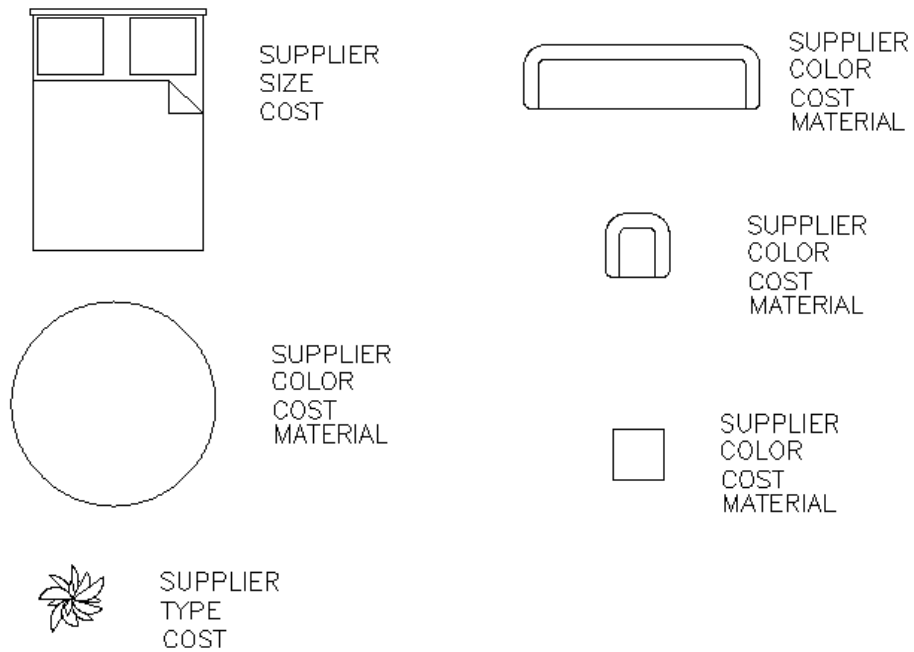


Figure Step 5

STEP 6 Figure Step 6 shows the attribute values that you must assign when you insert them in Step 7.

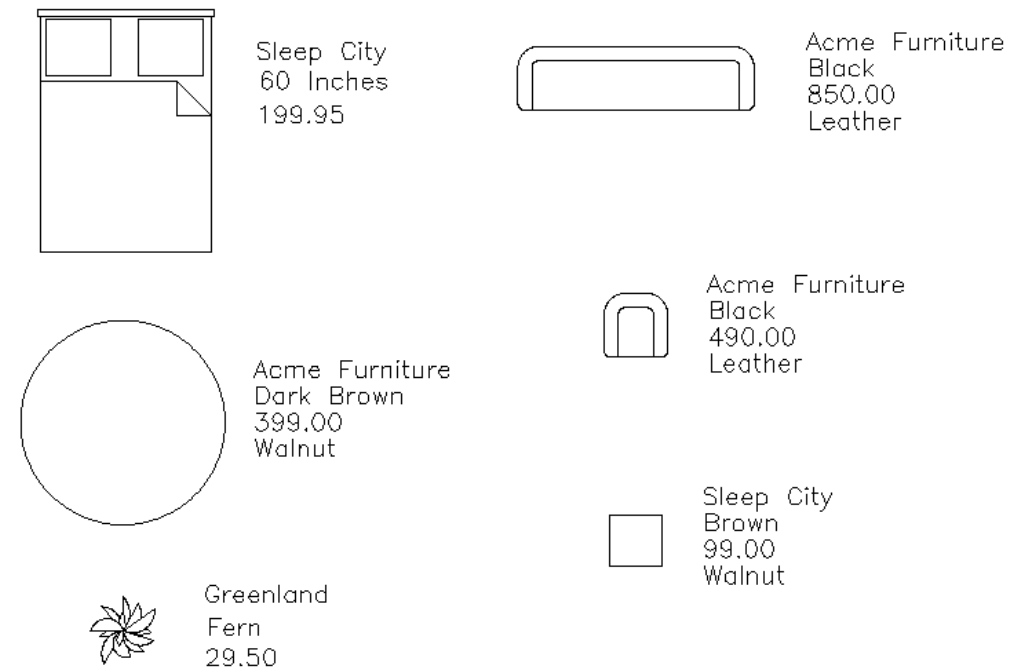


Figure Step 6

STEP 7 Create layer Furniture, color black/white. Insert the blocks into the floor plan as shown in Figure Step 7 on layer Furniture. The attribute values for each block are shown in Figure Step 6.

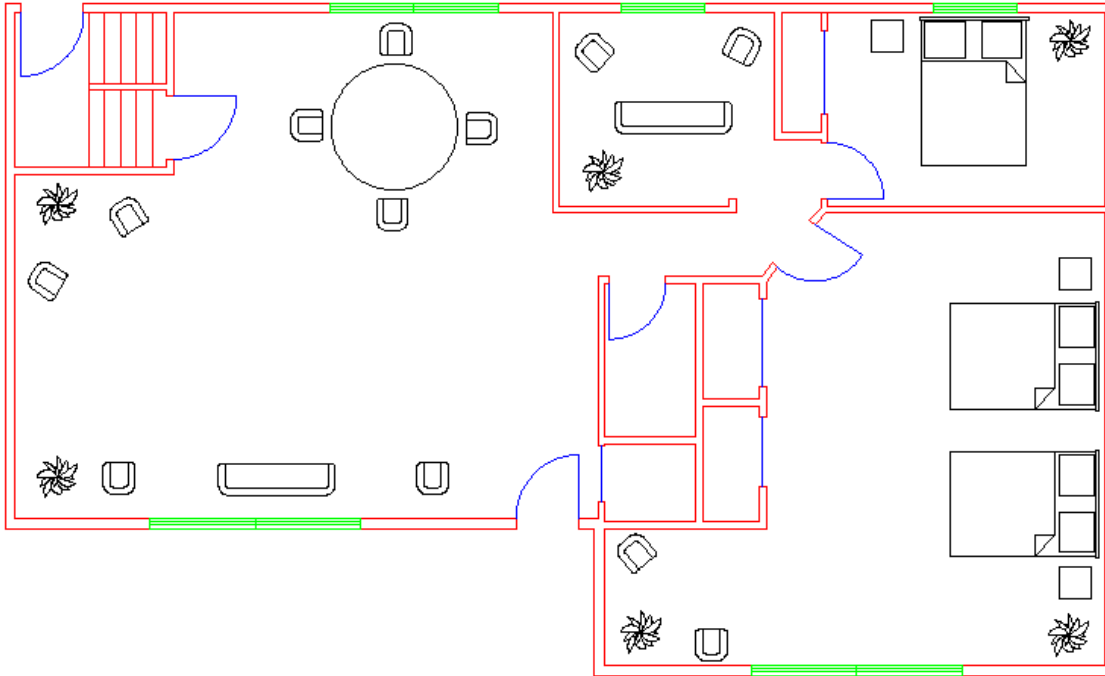


Figure Step 7

STEP 8 Using the appropriate command, display all the assigned attribute values and check that they are correct. After you check them and edit if you find errors, disable the display of the attributes.

STEP 9 Save and close the drawing.