



AutoCAD Level 2

Session 02

AGENDA

- **Creating and using blocks**
 - What is a block
 - Creating a block
 - Inserting a block
 - Block libraries
- **Creating and using Attributes**
 - What is an attribute
 - Creating an attribute

What are Blocks and why are they used?

A block is a combination of autocad objects such as lines, arcs, shapes, text, or other cad elements that are combined together to form a single entity . These single entities can then be inserted and used in other drawings to improve consistency and speed.

The true power of autocad is this:

Never having to draw the same thing twice.

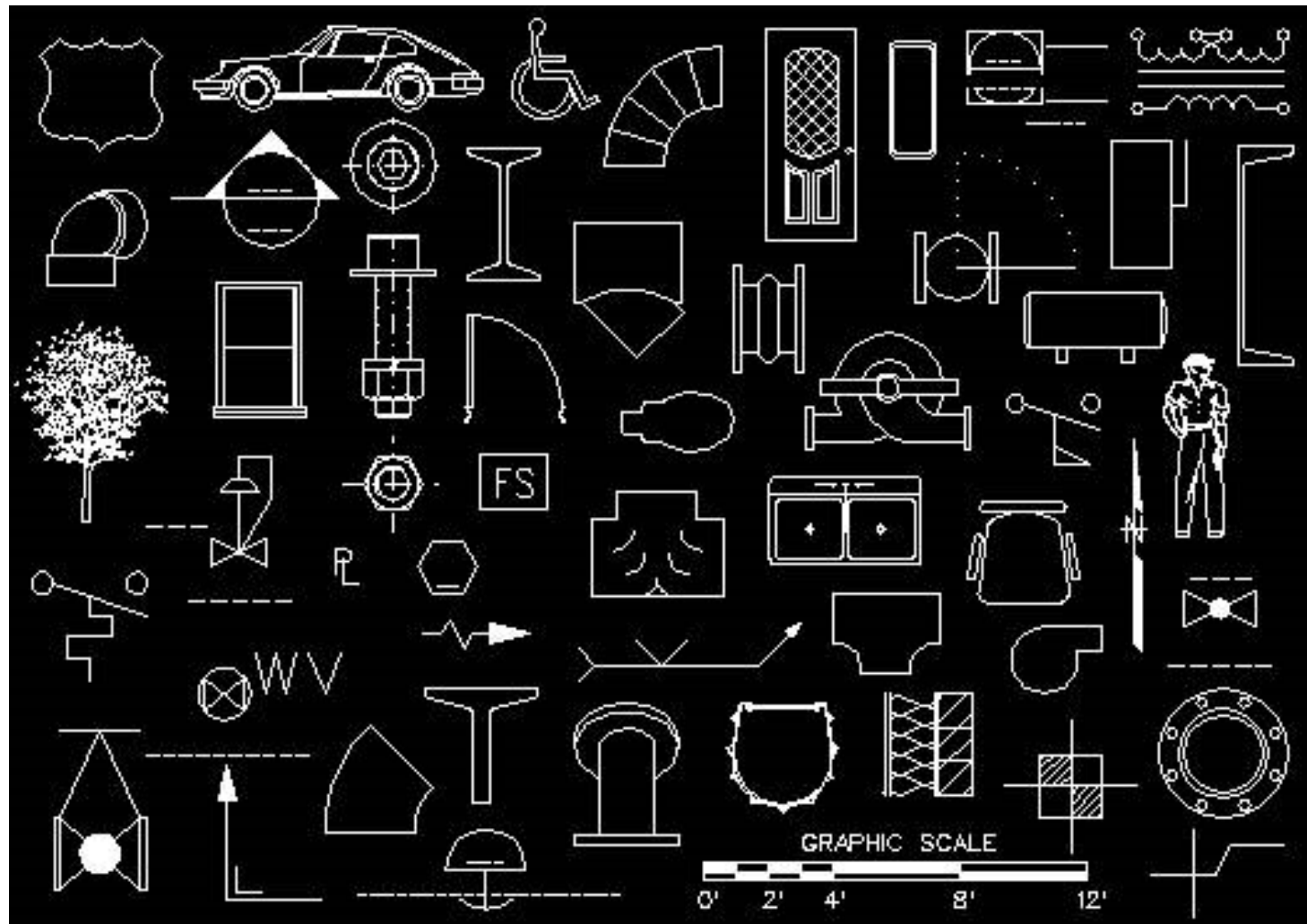
In an architectural drawing, think about all the objects that need to be drawn over and over again.

Blocks are use so that objects do not have to be drawn twice.

Examples of Repetition in Architectural Drawings

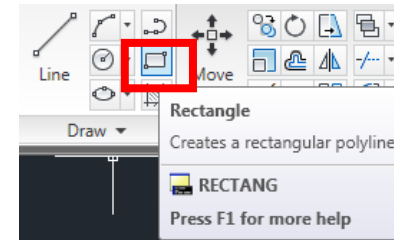
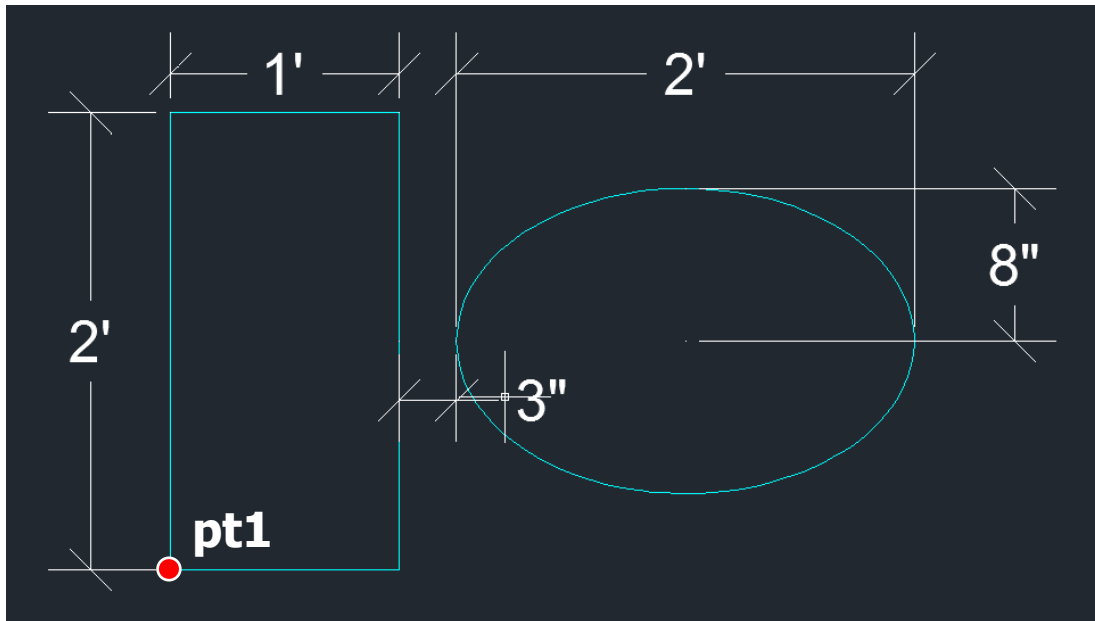


Blocks in Autocad.

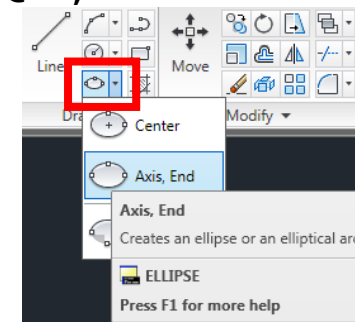


Creating your first Block.

- Start a new file.
- Setup units to Imperial.
- Create a new layer: Fixture-cyan-continuous.
- Draw the toilet block below.

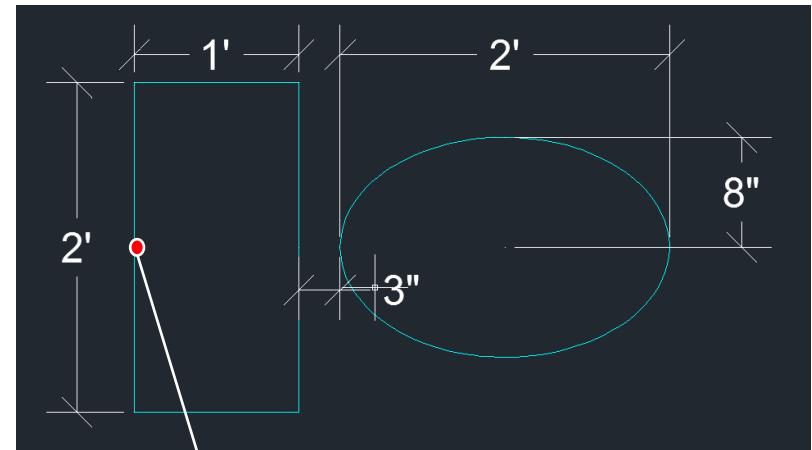
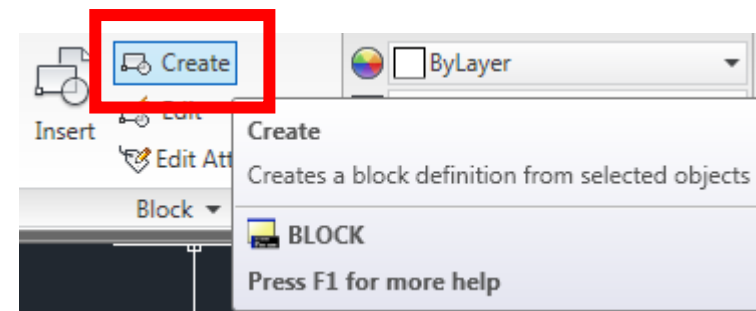
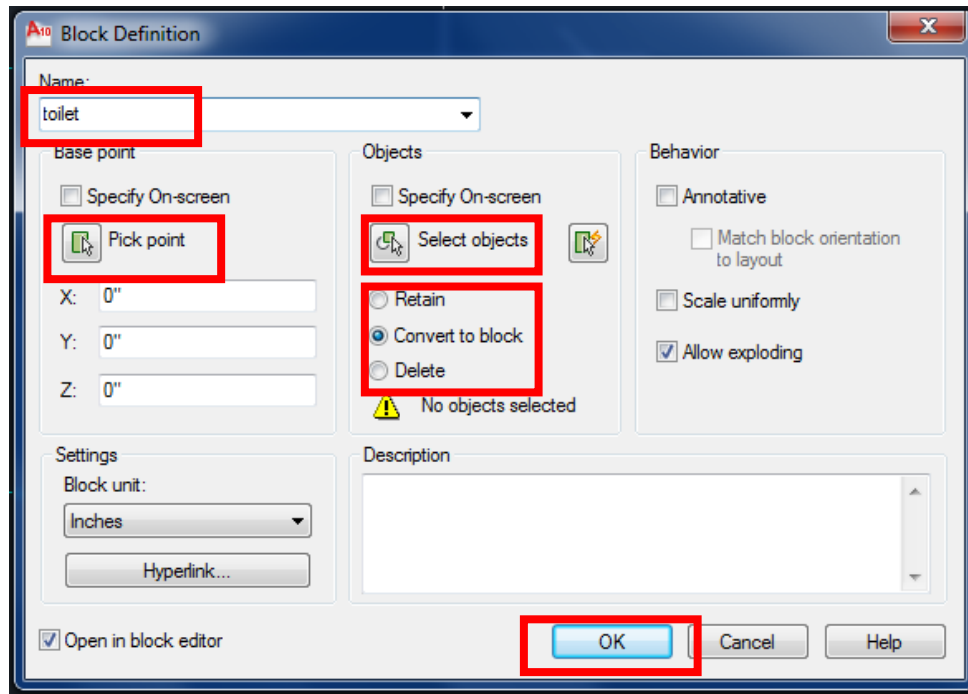


Command: _rectang
Specify first corner point or [Chamfer/Elevation/Fillet/Thickness/Width]: pick point 1
Specify other corner point or [Area/Dimensions/Rotation]:
@12,24



Command: ELLIPSE
Specify axis endpoint of ellipse or [Arc/Center]: use object snap tracking from midpoint of front of tank 3"
Specify other endpoint of axis: 24
Specify distance to other axis or [Rotation]: 8

Creating your first Block.



Basepoint (mid)

Steps:

- Type in a name for the block
- Pick a basepoint (object snap midpoint)
- Select objects (both rectangle and ellipse)
- Options for original
- ok

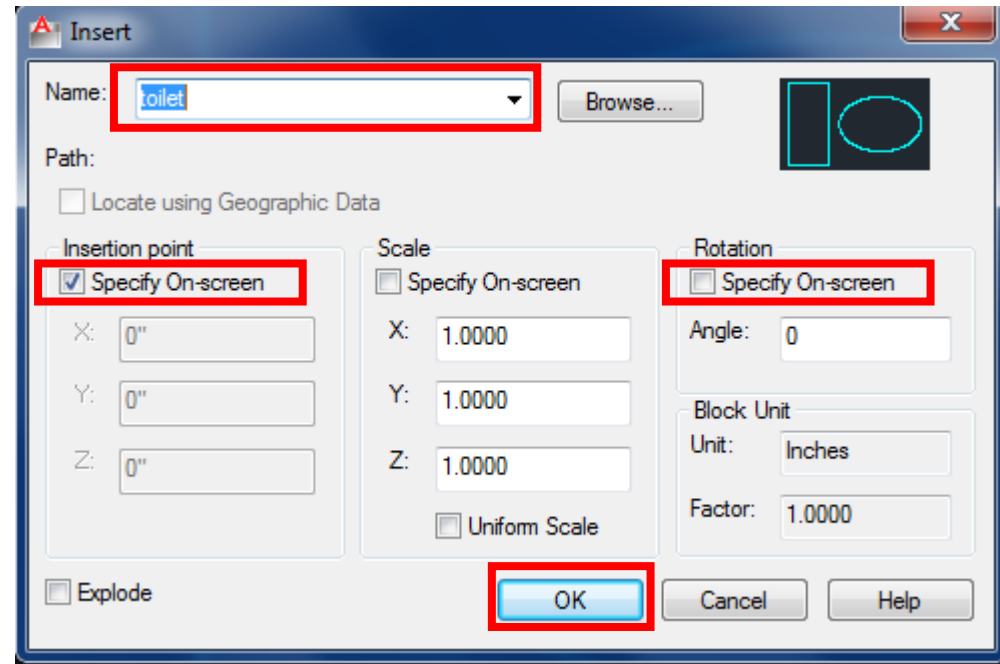
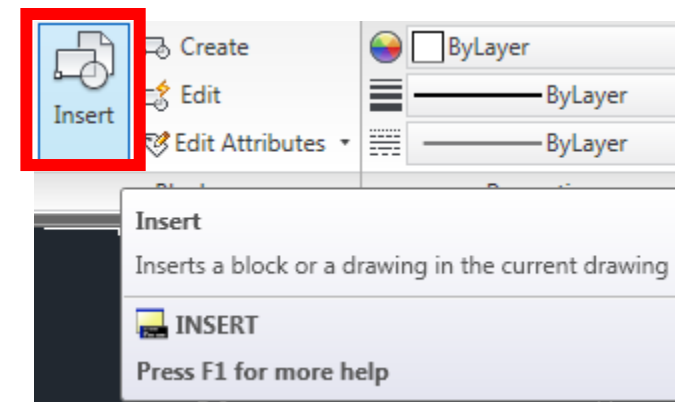
A Block has been created

Inserting Blocks.

- Now that a **Block** has been created, it can be inserted anywhere else on the drawing.

Steps:

- Select a predefined **Block** from the list
 - Check **specify on screen** for insertion point
 - Leave scale unchanged
 - Check **specify on screen** for Rotation
 - Block unit will identify the original units of the block about to be inserted. If you are trying to insert a block with a different unit setup as the current file, then autocad will scale the block to match the current drawing unit.
 - Ok
 - Now pick a point on the screen where you want the block to go.
 - pick a rotation angle or type in an angle.
- A Block has been inserted.**



Editing Blocks

- It's not uncommon for us to need to update our block definitions from time to time. You probably follow the same procedure we've all followed for years: Insert the block... explode it... make the necessary changes... go back into the block command, redefine it... make sure you use the same insertion point or all of the previously inserted blocks will move, and so on. Redefining an existing block is not a very exciting task, tedious at best.
- Now, the routine of editing an existing block has become easier. By using the Block Editor, revising blocks has become easier.

1. Start the Block Editor command or double-click on the block you want to edit:

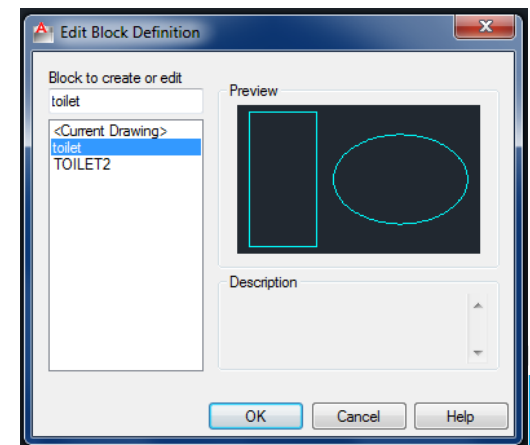
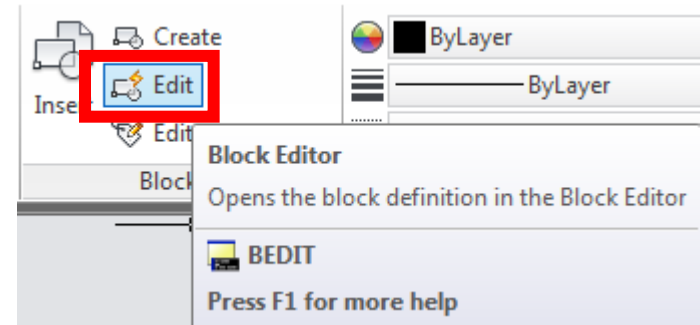
Ribbon > Home tab > Block panel > Edit tool button

In the Edit Block Definition dialog box, select the block you want to edit and click OK.

2. The editor will open on the right side of the ribbon. Access to all the tabs in the ribbon will allow you to make any changes needed to your AutoCAD blocks.

3. When you are finished close the editor by clicking that button located on the ribbon.

4. Before the editor closes AutoCAD will ask you if you would like to save changes. When you click Yes the block is redefined and all the existing insertions of that block will be updated.



On which layers should you create blocks?

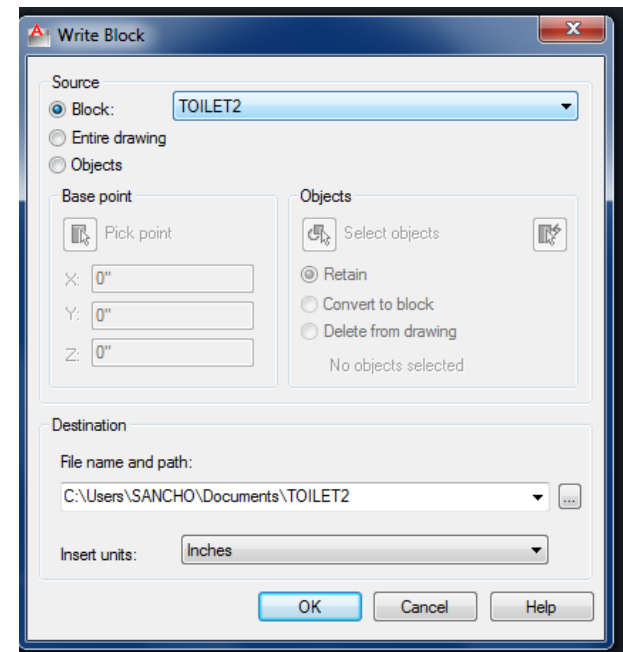
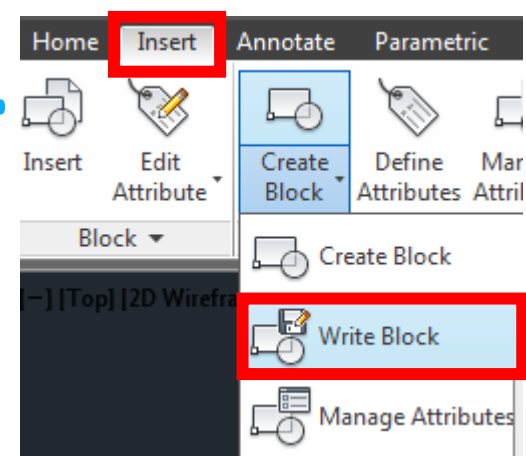
- When you create blocks to insert into a drawing, you need to consider what layer to use for the components that make up the blocks.
- On any layer (except 0); color, linetype & lineweight set to ByLayer
 - Block keeps properties of that layer. AutoCAD creates the layer if necessary when you insert it into another drawing.. If you insert the block on a different layer, it keeps its original properties, but is reported (in Properties window) as being on the insertion layer.
- On any layer (including 0); color, linetype & lineweight set explicitly (individually)
 - Block keeps color, linetype & lineweight that were set. AutoCAD creates the layer if necessary when you insert it into another drawing.
- On layer 0; color, linetype & lineweight set to ByLayer
 - Block takes on the layer and properties of the current layer. No new layers are created.

Saving blocks as external Files.

- The wblock command is used to write an existing block definition, or a part of the current drawing, to a new drawing file. These files are then available for insertion into any drawing.

HOW TO:

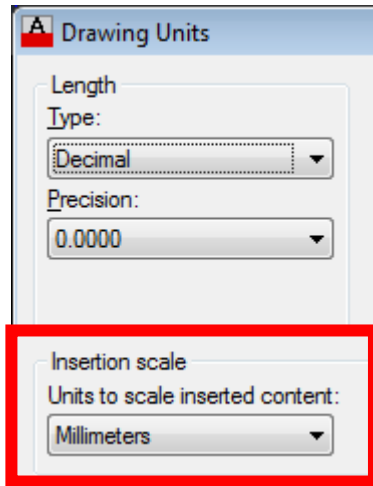
- 1. Start the command. Command: wblock
- Select what will be sent to the new drawing (Source): a Block, the Entire drawing or Objects.
 - 2a. Select the Block, then choose a block available in the current drawing.
 - 2b. Select the Entire drawing,
 - 2c. Select objects acts similarly to creating a block
- 3. Then choose the destination of the new file.
- 4. OK



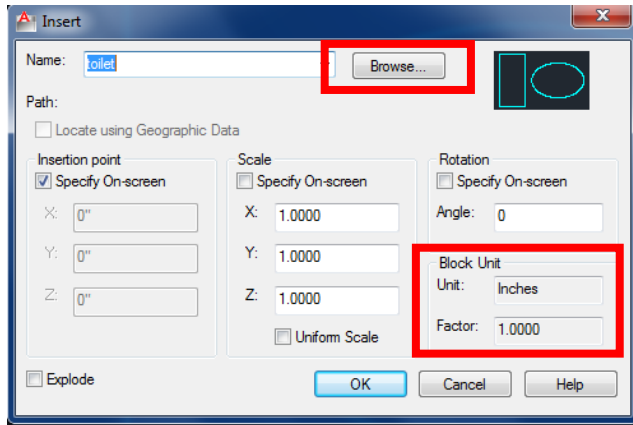
An external file has now been created that can now be inserted into any autocad file by using the Insert command.

Inserting an external file into your current file.

- Before inserting an external file into a drawing make sure to set the insertion units to the setting:



- Use the Insert Command and pick the Browse button in order to find these files.

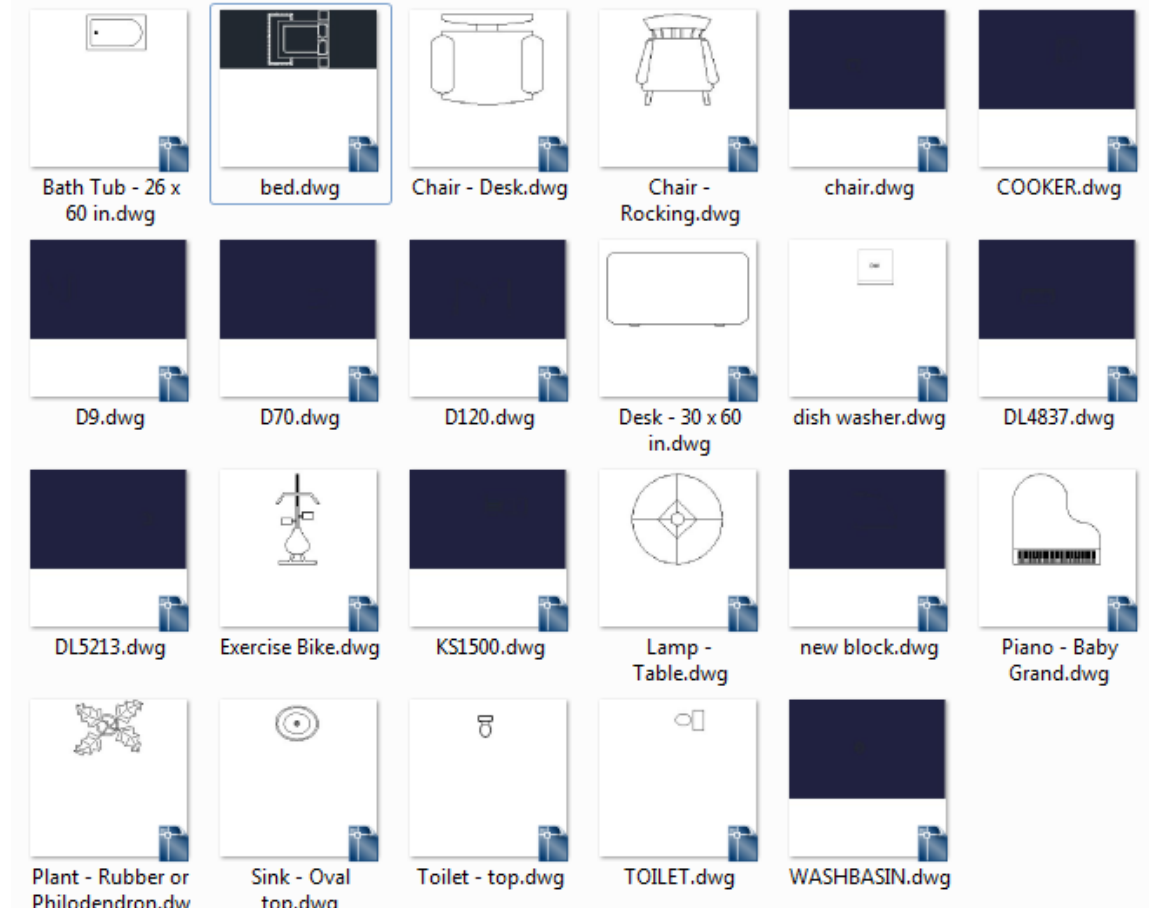


Insertion Factors for Real Objects

Block Units	Drawing Units	Scale Factor
Imperial	Imperial	1
Metric (mm)	Metric (mm)	1
Metric (mm)	Imperial	$1/25.4 = 0.03937$
Imperial	Metric (mm)	25.4

Block Libraries

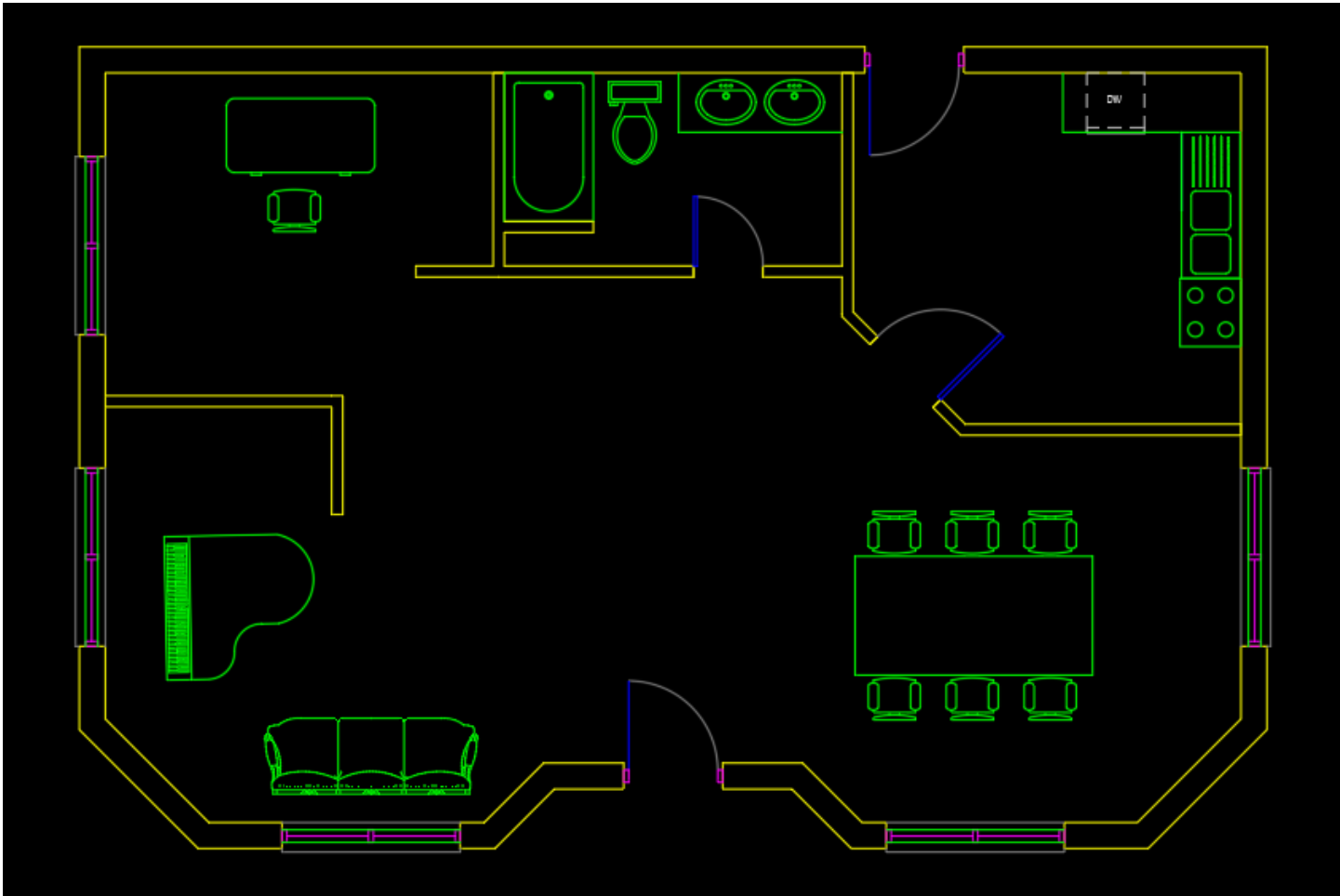
- In order to organize a set of blocks as a library, the only practical way is to place them in a sub-directory (or Folder) to keep them together. They remain as separate DWG files, one per symbol.



Advice: When using blocks downloaded from the internet, open the file first and make sure to revise the layers to suit your standards OR PLACE EVERYTHING ON LAYER 0.

Exercise 3.dwg

- Open Exercise 2.dwg
- Using the blocks provided, insert them into the floor plan as shown below



Attributes

- The command for creating an attribute is ATTDEF.

1) Set attribute settings:

Tag: The attribute's tag is the initial text value .

Prompt: The user is prompted for attribute values when blocks with attributes are placed. The question that will be asked should be written here. You can type short messages like "User Name:", "Board Capacity:", "Room Area:" etc.

Default: A commonly used answer to the prompt.

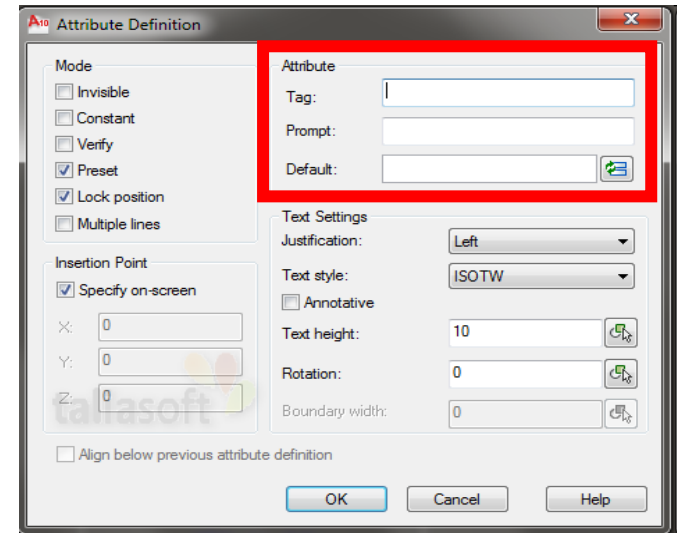
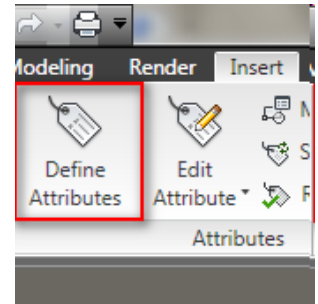
2) Set the mode

3) Set the Text settings

4) Specify the insertion point on the screen

5) Click OK

6) Insert the attribute



Tag: D1

Prompt: Door number

Default: D1

D1

Exercise 4.dwg

- Open Exercise 3.dwg
- Create a door tag (block with attribute) and insert them in front of all doors in plan.
- Use different door numbers for each door.
- Create a window tag and place Infront of all windows.

