

AutoCAD Reference Command List: Last Updated 9/11/2012

NOTE: This is for the 2012/2013 version of AutoCAD. Any newer updates could possibly be slightly different.

Object Selection:

Selecting objects with the mouse: sounds trivial but it is actually extremely beneficial

Drag left to right selects only objects inside the box

Drag right to left selects any object that comes in contact with the box

Tip: Use the middle mouse button to pan across the field of view quickly.

Command: **OSNAP**

This will bring up the console to adjust how your cursor will “snap” or autoselect specific parts of lines and polygons. You can play around with the others, but I’ve found these are most important:

Endpoint, Midpoint, Center, Intersection, Extension, Perpendicular, Parallel

TIP : use spacebar to enter commands in faster

Layers: Allows you to differentiate between different sets of objects and manipulate them without disturbing other sets. Can lock and hide them at will.

Command: **GRID** – can turn on or off a quick reference grid for you to use.

In this class we will always be using the scale 1 unit = 1 micron (10^{-6} m)

Drawing:

These are the basics of drawing objects and shapes. Most of the commands are intuitive and can also be found in the toolbars. They can be typed in at anytime or in the command window. Note the options in brackets after typing in the command, these allow you to use the command in many different ways.

For example: Using the command MOVE lets you to change the position of the object. There is another sub-option however that allows you to move the object a specific coordinate distance from its original position. Many if not all the commands below have sub-options that are extremely helpful.

Command: **LINE** – draws a line. Specify beginning and end. You can set the length of the line by typing in the length.

Tip: Hold Shift to draw a perfectly vertical or horizontal line.

Command: **CIRCLE/ARC** – draws a circle or an arc. Set the length

Command: **RECTANGLE**

Command: **POLYGON** – creates polygons based on the number of sides (aka 3 for triangle)

Command: **ARRAY** – creates copies of the object in rows and columns (rectangular) or in a circle (polar)

Command: **SPLINE** – creates a squiggly line based on defined vertices.

Command: **OFFSET** – creates a parallel line a specified distance from the selected object.

Command: **MIRROR** - creates a mirror image of the select object

Command: **TEXT** – creates text

Modifying /Editing:

Command: **TRIM** – First choose the object you are using to cut the line, then the line and side you want to erase.

Command: **EXTEND**- Use it to extend a line, useful for closing objects.

Command: **PEDIT** – allows you to join and close objects. It must change arcs and splines to polylines first (basically turns them all into straight lines). Can also be used for closing small gaps in your lines/objects.

Command: **EXPLODE** – exact opposite joining lines. Explodes them into the most basic elements (takes a closed triangle and changes it into 3 connected lines)

Command: **SCALE** – used to increase or decrease the size of an object based on a multiplier factor (aka want half as big, factor = 0.5)

Command: **COPY** – used to copy objects based on a reference point

Command: **MOVE, M** - moves the selected object to specified position.

Command: **ERASE, E** – Erase/Deletes the selected objects.

Command: **UNDO, U** – Undoes the last action. Can be used multiple times.

Command: **QUICKCALC** – Brings up a calculator. More useful than you think.

Command: **3DORBIT** –Changes the camera view. Also useful for checking if the object is purely in 2d.

Command: **EXTRUDE** – Use to convert a 2d shape into a 3d object. Just gives the object height. (circle +EXTRUDE = cylinder)

Command: **OVERKILL** – Used to delete overlapping and/or duplicate lines

Command: **ZOOM** – zoom in or out

If you want to learn more commands or how to do something I have found the best reference is CADtutor.net or the inprogram help of AutoCAD.

Troubleshooting:

Before you start anything you should make sure **hardware acceleration is on**. This will help your computer process all the drawings. It is the button located in the bottom right-hand corner between the wrench and the lock.

If you are having trouble seeing arcs and circles as round, you will need to turn up the polygon resolution on AutoCAD. You will need to balance the resolution vs performance for your computer. NOTE: even if you do see arcs as polygonal, they are still actually arcs in the AutoCAD drawing, but your computer just isn't displaying them as so. Solution: type in "OPTIONS", go to the Display tab and under the Display resolution box change the arc and circle smoothness to 20000 and the rendered object smoothness to 0.5