



University of Engineering & Technology Peshawar

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Course Name: Uni-elective I (CAD)

Credit hours: 03

Instructor: Engr. Muhammad Arsalan Khan

Office: Fluid Mechanics Lab, Mechanical Dpt. Main Campus.

Email: engrarsalan@uetpeshawar.edu.pk

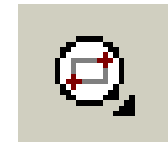
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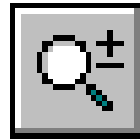
Tools For Moving Around The Drawing Area

ZOOM Increases or decreases the apparent size of objects in the current viewport

Zoom Flyout



Standard Toolbar:



Zoom Realtime

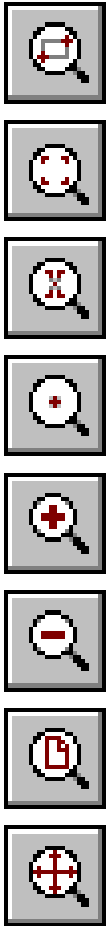
View menu: **Zoom Realtime**

Shortcut menu: With no objects selected, right-click in the drawing area and choose Zoom to zoom in real time.

Command line: **zoom** (or 'zoom for transparent use)

Specify corner of window, enter a scale factor (nX or nXP), or

[All/Center/Dynamic/Extents/Previous/Scale/Window] <real time>



PAN command

- This command moves the drawing display in the current viewport without changing the display scale.
- A displacement must be specified either by pointing or typing.

Standard toolbar:



View menu: **Pan** **Realtime**

Shortcut menu: With no objects selected, right-click in the drawing area and choose Pan.

Command line: **pan** (or 'pan for transparent use)

- AutoCAD displays the following prompt; you can pan the drawing display in real time.
- Press ESC or ENTER to exit, or right-click to display shortcut menu.

GRID command

- Displays a **dot grid** in the current viewport
- The grid helps you **align objects** and **visualize** the distances between them.
- AutoCAD does not **plot** the grid, nor does it consider the grid to be part of the drawing.
- You can turn the grid on and off in the middle of **another** command.
- To turn the grid **on or off**, click **Grid** on the **status bar**, use the **GRID command**, press **CTRL+G**, or press **F7**. The following prompt will display:

Specify grid spacing(X) or [ON/OFF/Snap/Aspect] <0.5000>:

SNAP command

- Restricts **cursor movement** to specified intervals.
- You can rotate the **snap grid**, set differing X and Y spacing, or choose an isometric format for the snap grid.
- A change in the snap grid affects the **cursor location** when you specify a point location using the pointing device.
- The snap grid is **invisible**.
- AutoCAD ignores Snap mode in **perspective views**.
- To turn Snap mode **on and off**, click **Snap** on the status bar, use the **SNAP command**, press CTRL+B, or press F9 or **'snap** for transparent use, will display:
Specify snap spacing or [ON/OFF/Aspect/Rotate/Style/Type] <current>:
Specify a distance, enter an option, or press ENTER

Object Snap Modes

- It is often **useful** to be able to draw something from another shape.
- An object snap mode **specifies** a snap point at an exact location on an object.
- AutoCAD has a **large selection** of "snap modes" for this purpose.
- The most commonly used snap modes are:

Endpoint

Midpoint

Intersection

Extension

Center

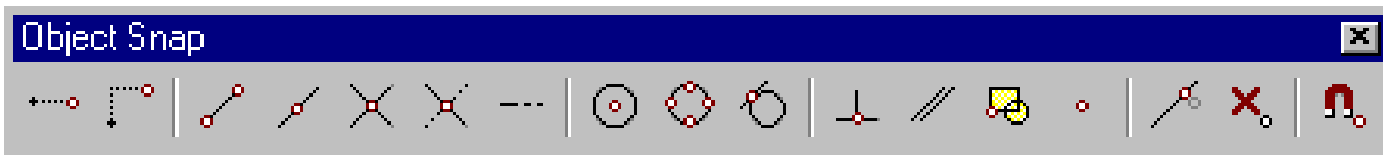
Quadrant

Tangent

Parallel

Perpendicular

- The object snap modes can either be typed or they can be selected from the standard toolbar or from the **snap toolbar**:



OSNAP command

Object Snap toolbar: 

Tools Menu: **Drafting Settings**

Shortcut menu: Press SHIFT while right-clicking in the drawing area and choose Osnap Settings.

Command line: **osnap** (or 'osnap for transparent use)

- AutoCAD displays the Object Snaps tab in the **Drafting Settings dialog box**.
- If you enter -osnap at the Command prompt, OSNAP presents options on the command line.

Drafting Settings

- DSETTINGS **specifies** the settings for a number of drafting aids to help you draw more quickly and precisely.
- Settings **include** Snap mode, the grid, object snaps, and polar and object snap tracking.

Tools menu: **Drafting Settings**

Shortcut menu: Right-click Snap, Grid, Polar, Osnap, or Otrack on the status bar and choose Settings.

Command line: **dsettings** (or 'dsettings for transparent use)

AutoCAD displays the Drafting Settings dialog box.

PROPERTIES command

- This command is **new** to AutoCAD 2000, which **controls** properties of existing objects and is very **simple** to use.
- You can leave the Properties window **open** while you work.
- When you select an object, the Properties window **displays** the properties of that object.
- When **multiple objects** are selected, the Properties window displays the general properties and any other properties that are common among objects in the selection set.
- The **general properties** are as follows:

Color

Layer

Linetype

Linetype scale

Plot style

Lineweight

Hyperlink

Thickness

PROPERTIES

Standard toolbar:



Tools menu: Properties

Shortcut menu: Select the objects whose properties you want to view or modify, right-click in the drawing area, and choose Properties.

Command line: properties

AutoCAD displays the Properties window. The Properties window is the main method for viewing and modifying properties of AutoCAD objects.

There are **eight** general properties common to all objects. All other object properties are specific to the type of AutoCAD object.

PROPERTIESCLOSE

Closes the Properties window

Properties Window

The screenshot shows the Properties Window for a selected circle object. The window title is "Properties - r300-25.dwg". The selected object is "Circle (1)". The window is organized into two tabs: "Alphabetic" and "Categorized". The "Categorized" tab is active, showing a list of properties grouped into "General" and "Geometry".

Annotations point to the following features:

- list of selected objects (points to the "Circle (1)" dropdown)
- Quick Select button (points to the lightning bolt icon)
- list properties by category or alphabetically (points to the "Categorized" tab)
- displays a Pick Point button (points to the small icon next to the "Center X" value)
- list of object properties (points to the "Circumference" value)

General	
Color	■ ByLayer
Layer	0
Linetype	———— ByLayer
Linetype scale	1.0000
Plot style	ByLayer
Lineweight	———— ByLayer
Hyperlink	
Thickness	0.0000
Geometry	
Center X	6.4642
Center Y	5.8867
Center Z	0.0000
Radius	2.4513
Diameter	4.9027
Circumference	15.4022
Area	18.8779
Normal X	0.0000
Normal Y	0.0000
Normal Z	1.0000

Object Properties toolbar



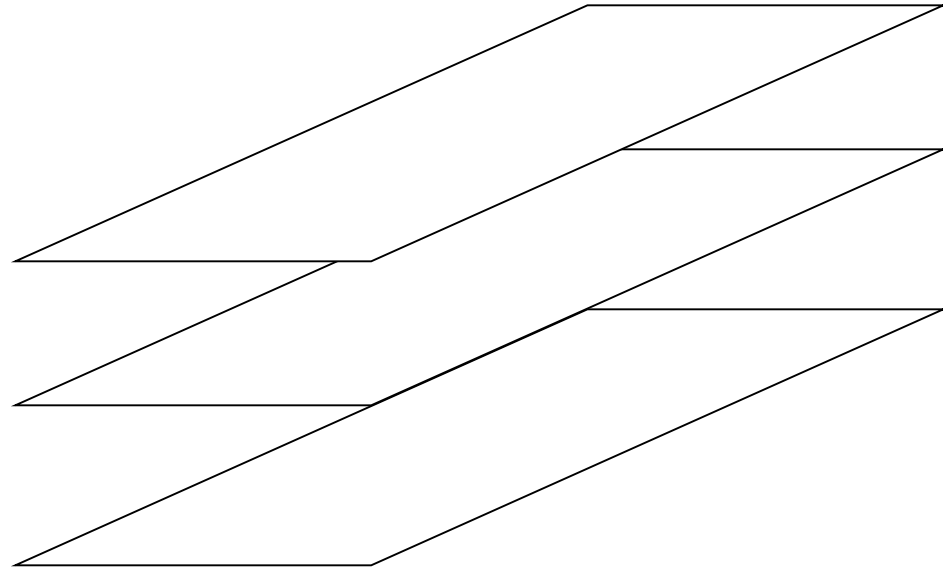
- You can use the controls on the Object Properties toolbar to quickly **view or change** an object's layer, layer properties, color, linetype, lineweight, and plot style.
- The Object Properties toolbar **consolidates** the commands needed to view and edit these object properties.
- Selecting an object when no command is active **dynamically displays** these properties in the controls on the toolbar.
- You cannot change the properties of objects on **locked layers**.

AutoCAD LAYERS

Annotations

Dimensions

Objects



Sample Layers

Drawing Layers

- Layers are like **transparent overlays** on which you organize and group different kinds of drawing information.
- The objects you create have **common properties** including colors, linetypes, and lineweights.
- An object can **assume** these properties from the layer it is drawn on, or properties can be specifically assigned to individual objects.
- You can **create and name** a layer for each conceptual grouping (such as walls or dimensions) and assign common properties to those layers.
- By grouping objects into layers, you can **control** their display and make changes **quickly** and **efficiently**.

LAYERS

- When you begin a new drawing, AutoCAD creates a special layer **named 0**.
- By **default**, layer 0 is assigned color number 7 (white or black depending upon your background color), the CONTINUOUS linetype, a linewidth of DEFAULT (the default setting for DEFAULT is .01 inch or .25 mm), and the Normal plot style.
- Layer 0 **cannot** be deleted or renamed.
- You can **create new** layers and assign color, linetype, linewidth, and plot style properties to those layers.

LAYER command

Manages layers and layer properties

Object Properties toolbar:

Format menu: Layer

Command line: layer (or 'layer for tran  t use)

AutoCAD® displays the **Layer Properties Manager**.

If you enter **-layer** at the Command prompt, LAYER displays prompts on the command line.

LAYER Options

Layer name. An unlimited number of layers may be created.

Current layer. A layer upon which all newly created entities are placed.

Visibility. Each layer can be either visible (*ON*) or invisible (*OFF*).

Colour and linestyle. Each layer has associated with it both a colour and a linestyle.

Freeze/Thaw state. At any time the user may *freeze* one or more layers of a drawing.

BYBLOCK

A special object property used to specify that the object inherits the color or linetype of any block containing it.

BYLAYER

A special object property used to specify that the object inherits the color or linetype associated with its layer.