AutoCAD 2014

Level 1 Essentials

(US Imperial)

CyberTek Publishing • "Learning Made Easy"

About this Student Guide

This book is designed to be the basis of an instructor-led training course in AutoCAD Level 1, which includes all the fundamental material specified by Autodesk for the Essentials and Beyond topics for an AutoCAD Level 1 course. It is one in a series of AutoCAD Courseware titles available from CyberTek Publishing

This Student Guide meets the standards and objectives for Autodesk courseware as specified in Autodesk's Courseware Standards document for a class of this type and length.

We welcome any comments you may have regarding this training manual, or any of our products. To contact us please email: grw@ctpub.net.

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Preface

The objective of ***AutoCAD® Level 1 Essentials*** is to enable students to create and edit basic 2D drawings in AutoCAD using the command tools that are mostly used in an everyday CAD drawing session. Even at this fundamental level, AutoCAD® is one of the most sophisticated computer applications that users are likely to encounter. Learning to use it is therefore not a trivial undertaking.

To make the student learning process easier and provide as much Hands-On experience as possible students will be participating in "hands on" lecture sessions led by the instructor followed by the completion of "hands on" exercises to reinforce the materials taught.

This Student Guide is intended for a 4 day class in the fundamentals of using AutoCAD. ***AutoCAD Level 1 Essentials*** covers the indispensable core topics for working with AutoCAD. The teaching strategy is to start with a few basic tools that will let the student create and edit a simple drawing. Then we continue to develop those tools, as well as introducing more advanced tools throughout the course. Not every command or option is covered, because the intent is to show the ***most used*** tools and concepts that apply in working with AutoCAD within the 4 day class schedule:

- Understanding the AutoCAD workspace and user interface
- Using viewing tools, coordinates, basic drafting tools and setting up drawing units
- Creating and editing 2D geometry, lines, circles, arcs, polylines and points
- Editing 2D geometry
- Managing object properties, organizing drawing objects on layers
- Using CAD construction technique tools
- Creating text, defining text styles and editing text
- Creating local and global symbol blocks
- Inserting reusable symbols blocks
- Using Symbol Tool Palettes including DesignCenter and Idrop blocks
- Using dimension tools, creating dimension styles and editing dimensions
- Introduction to hatching and editing patterns
- Plotting concepts
- Preparing a layout to be plotted in paperspace with pen assignments

Note on "Hands-On" Lectures and Exercises

This course is designed for all lectures to be done with students participating in Instructor-Led "Hands-On" lecture sessions.

Following the lecture sessions students will perform a "hands on" exercise, or lab, on each major topic. The class schedule is designed to allow the students to complete all Hands-On exercises in the book.

Due to the number of students in class, speed and time frame to finish the class on time the Instructor may have to combine an exercise or two with the lecture to save time.

The unique "pictorial" design of CyberTek Publishing LLC training manuals is tremendously beneficial to the students in terms of learning methodology and retention of the material. In addition, our training manuals greatly enhance the teaching process for instructors as students will easily be able to navigate through the exercises, usually without any difficulties at all

Note on Optional Hands-On Exercises & Advanced Topics

The Optional Hands-on exercises and Advanced Topics are intended as supplemental learning material and may be included, or not, as determined by the pace of the class at the discretion of the instructor.

These exercises and topics are intended for the student to learn more on their own time in reviewing the book and studying after class.

For smaller classes, or classes that are running ahead of schedule, then these exercise topics may be used to give students additional "hands on" practice.

These topics and exercises will be up to the instructor and based on the class schedule.

To download the exercise files for any CyberTek Publishing training title go to:

http://www.ctpub.net > Choose Downloads from the menu bar

If you need the current version of AutoCAD software to work with while using this training manual you can download a free 30 day trial version from Autodesk:

Autodesk Download Site: http://usa.autodesk.com/products/free-product-trials

Notes On Symbols And Text Conventions

Throughout the pages of CyberTek Publishing LLC courseware you will encounter symbols and text conventions that you will become familiar with as you navigate the pages of our AutoCAD®, Revit®, and Inventor® courseware.

Following are the symbols and text conventions that you see in our courseware:

Left-Click Mouse Symbol

This mouse symbol always indicates a left mouse click action referring back to a step in a lecture or exercise sequence.

Right-Click Mouse Symbol

This mouse symbol indicates a right mouse click action referring back to a step in a lecture or exercise sequence.

Double-Click Mouse Symbol

This symbol designates a double mouse click action referring back to a step in a lecture or exercise sequence.

Action Step Letter

A circled letter indicates an alphabetical action step sequence referring back to a step in a lecture or exercise sequence.

Action Step Number

A circled number indicates a numberical action sequence referring back to a step in a lecture or exercise sequence.

Function Key Symbol

Keyboard symbols such as this indicate a Keyboard Function Key command.

<Ctrl> **Ctrl/Alt Keyboard Commands**

This convention indicates a Ctrl or an Alt key plus a second key to execcute a particulate AutoCAD command.

Table of Contents

1: Learning How to Work with AutoCAD

4: Creating 2D Geometry

6: Using Layers to Manage Object Properties

7: CAD Construction Techniques

9: Introduction to Blocks

10: Dimensions & Crosshatching

11: Plotting Drawings

Command References

1: Learning How to Work with AutoCAD

Learning Objectives: This section introduces new users to AutoCAD and familiarizes them with the software, the terminology, the command structure prompts, command options and generally how to use AutoCAD.

Setting Up AutoCAD

- Choosing a Start Up Menu
- Creating a Workspace
- Setting AutoCAD Options

Using the AutoCAD Interface

- Using the Command Ribbon
- Using Pull-Down Menus
- Using Toolbars
- Using AutoCAD Palettes

Working in AutoCAD's Spaces

- Using Model Space to Draw
- Using Paper Space for Layout Plots

Communicating With AutoCAD

- Reading Command Prompts
- Using Command Options
- Right-click Shortcut Menus

Learn How to Get Out of Trouble

- Canceling Commands
- Using the Undo & Redo Commands
- Using AutoCAD's On-Line Help

Saving Your Work

- Using Qsave Command
- Using SaveAs Command
- Using Save Command
- Setting the Automatic Save

Getting To Know AutoCAD

This chapter is intended to introduce new users to AutoCAD.

The first section of this book is to setup AutoCAD Workspaces that will be used throughout the book. This book can be used to teach AutoCAD using the new Ribbon features or for older releases using the Pull-down menus and toolbar.

The purpose of this chapter is to explain how AutoCAD works and get new users familiar with the terminology, setting up the software, the command structure, prompts and command options. *(Everything covered in this chapter will be expanded upon as the course progresses)*.

Class Instructions:

This section can be taught by Instructor/Student Hands-On Lecture or by Instructor Lecture with students completing the Examples and Hands-On Exercise.

Self Study:

Users learning AutoCAD on their own using this course material should read the Lecture pages and complete the Hands-On Exercises.

When used as a self study manual users will find that the lectures are written in simple terms explaining the commands and the exercises are made with step-by-step instructions to walk the user through the exercises.

Starting AutoCAD

Windows Desktop

There should be an AutoCAD Icon Tool on your desktop after installing the AutoCAD software. Simply double-click on the Desktop Icon to launch the software.

Windows Start Button

As with all Windows software you can use the Windows Start button. Then select All Programs in the Windows menu. In the Programs menu you can select the Autodesk program, then go to AutoCAD and select the software that you wish to open.

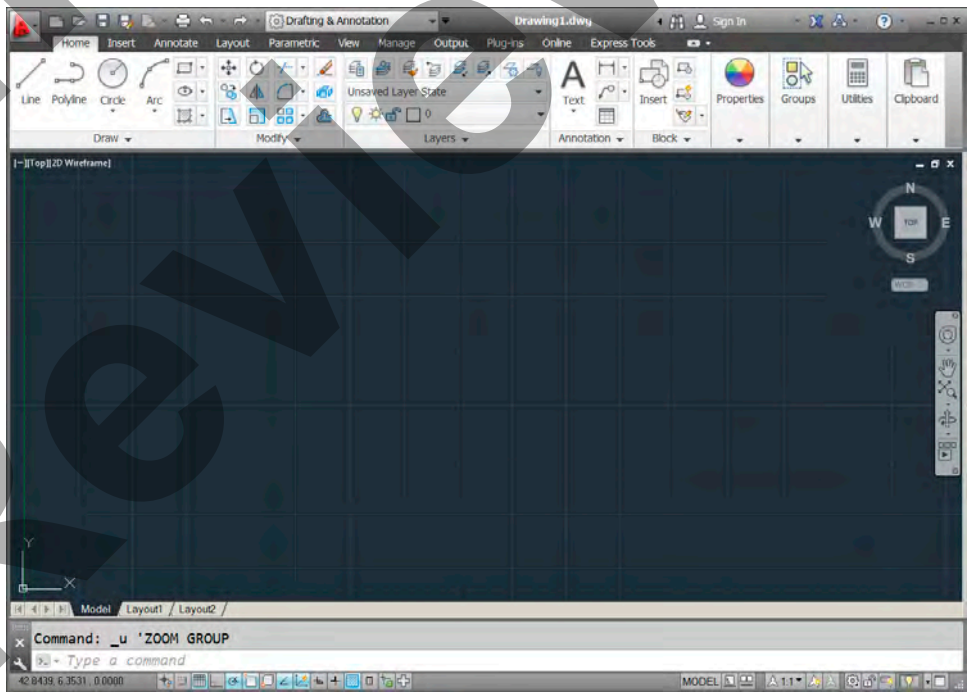
Initial AutoCAD Default Startup.

By default when you start up AutoCAD it will go straight into AutoCAD using the ACAD.DWT template file to start a new drawing file.

AutoCAD will also open in the default 2D Drafting & Annotation Workspace.

AutoCAD does have an Optional Startup Menu that can be used. By default this menu is turned off.

Using this menu is a User Preference, each way has its benefits.



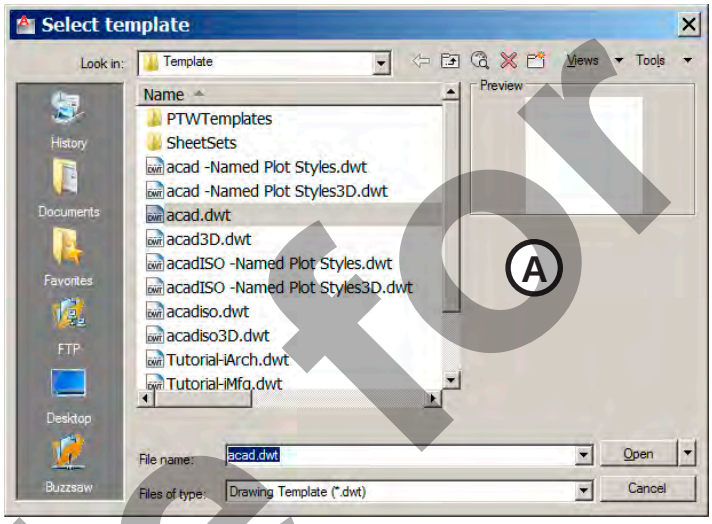
Optional Startup Menu

Once AutoCAD is running and you select the New drawing command it will take you to the Template dialog box **(A)** so that you can select the template file to use to start a new drawing.

You can setup AutoCAD to show a Startup dialog box when you launch AutoCAD or start a new drawing **(B)**.

If you are new to AutoCAD it maybe easier to understand what you are doing using this approach.

NOTE: This is an option and not required.

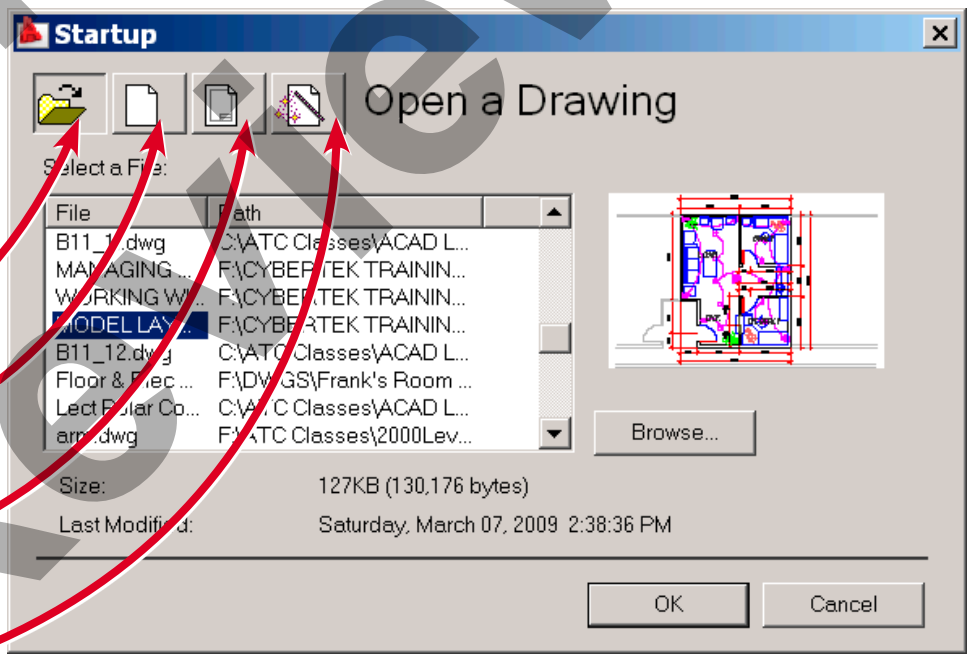


Turning on the STARTUP Menu:
At the command prompt type STARTUP <Enter>
At the new value prompt type 1 <Enter>

Startup Menu Buttons

Select an appropriate button in the Startup dialog box to open existing drawings or create new drawings.

- Open a Drawing
- Start from Scratch
- Use a Template
- Use a Wizard



Note:

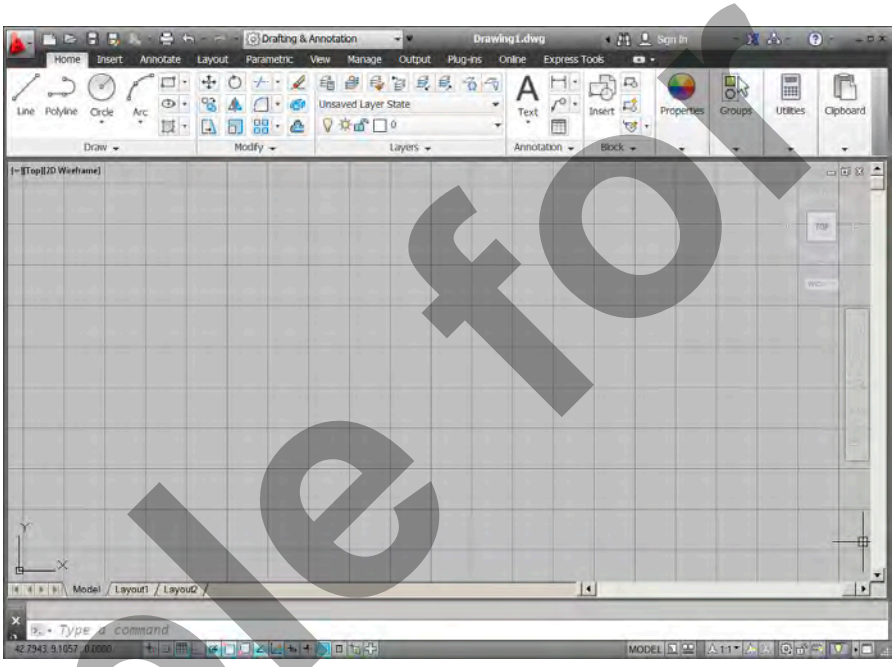
The Open a Drawing button will only appear when you first startup AutoCAD. Once inside AutoCAD you will have to use the OPEN command to open existing AutoCAD drawing files.

AutoCAD Workspaces

Drafting & Annotation

A default installation of AutoCAD provides a workspace that is tailored to drafting and annotation tasks. The first time you start AutoCAD, the Drafting & Annotation workspace is active.

The Drafting & Annotation-Workspace uses Ribbons (new to AutoCAD 2009).

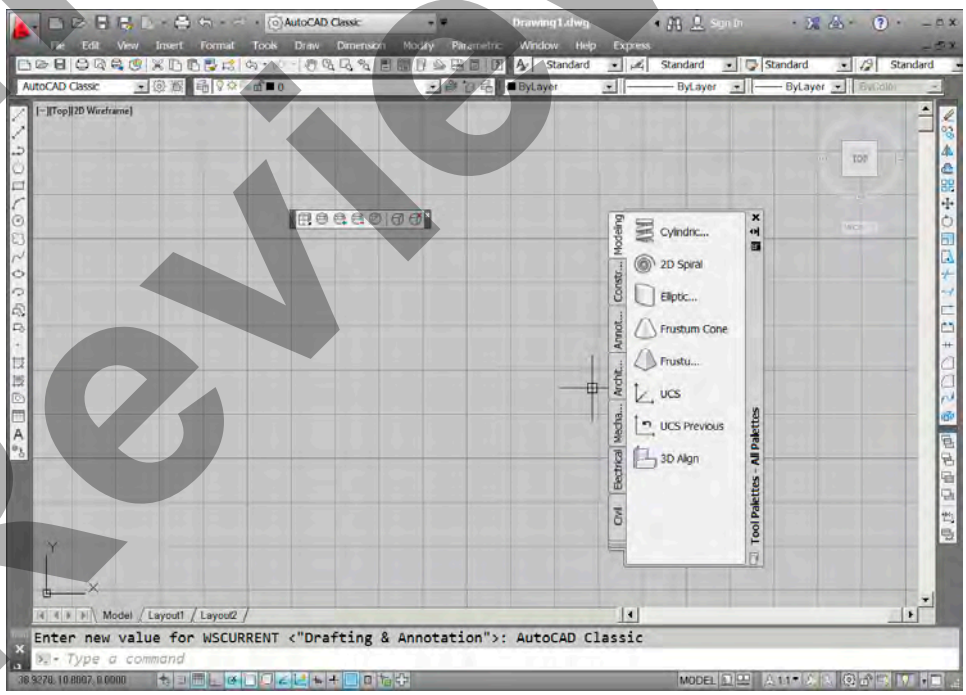


The Drafting & Annotation workspace provides most of the 2D drafting and annotation commands on panels in the Ribbon instead of on traditional toolbars. This streamlined workspace does not include toolbars such as Draw, Modify, and Styles, although all of the toolbars are available if you choose to use them.

AutoCAD Classic Workspace

The AutoCAD Classic Workspace uses the Pull-down menus and Toolbars with the same interface spanning releases from 2000 through 2008.

Note:
Using this Workspace will enable students using older releases to still learn AutoCAD and the command structure.

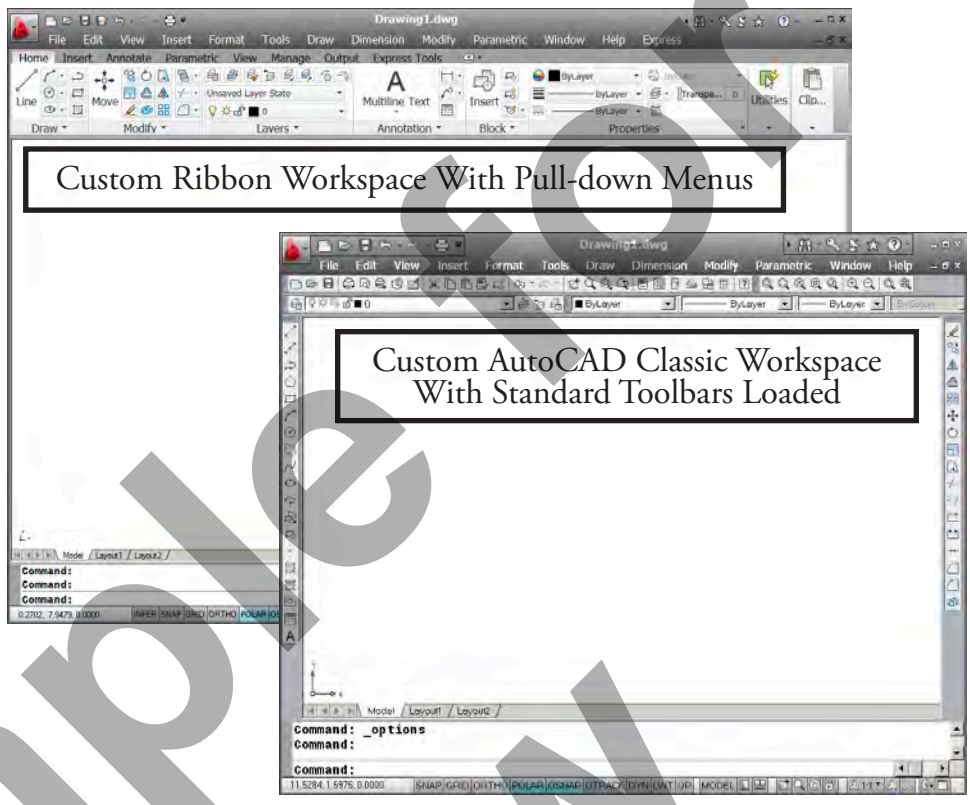


Creating and Saving Workspaces

AutoCAD users vary greatly in the way they like to use and access commands. Some like to type hotkeys, others prefer Toolbars for quick and easy access to commands. Many users like to use pull-down menus and others prefer the Ribbons. The power of AutoCAD is that it does not limit the user to a single method for accessing commands.

Workspaces

In this example you will setup a Custom Ribbon Workspace to use with this book.

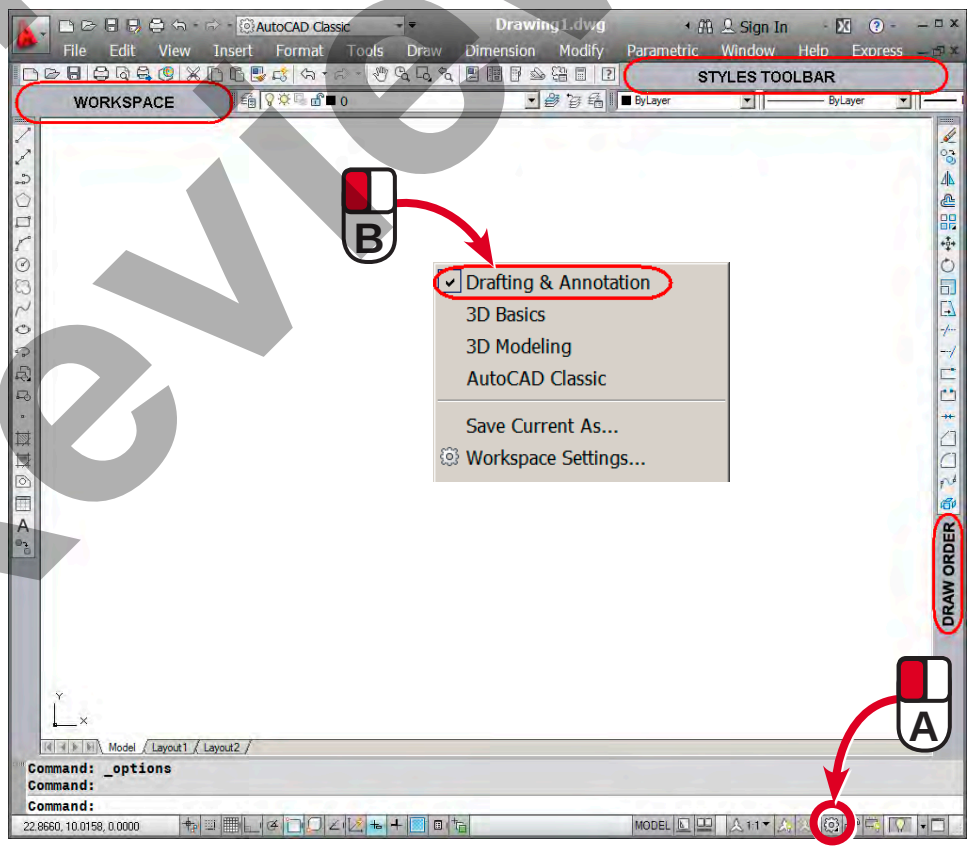


Workspaces

Creating a Custom Workspace to be used with this book.

1) **If Not in the Drafing & Annocations - Select** the **Workspace Icon (A)** at the bottom right of the Status Bar.

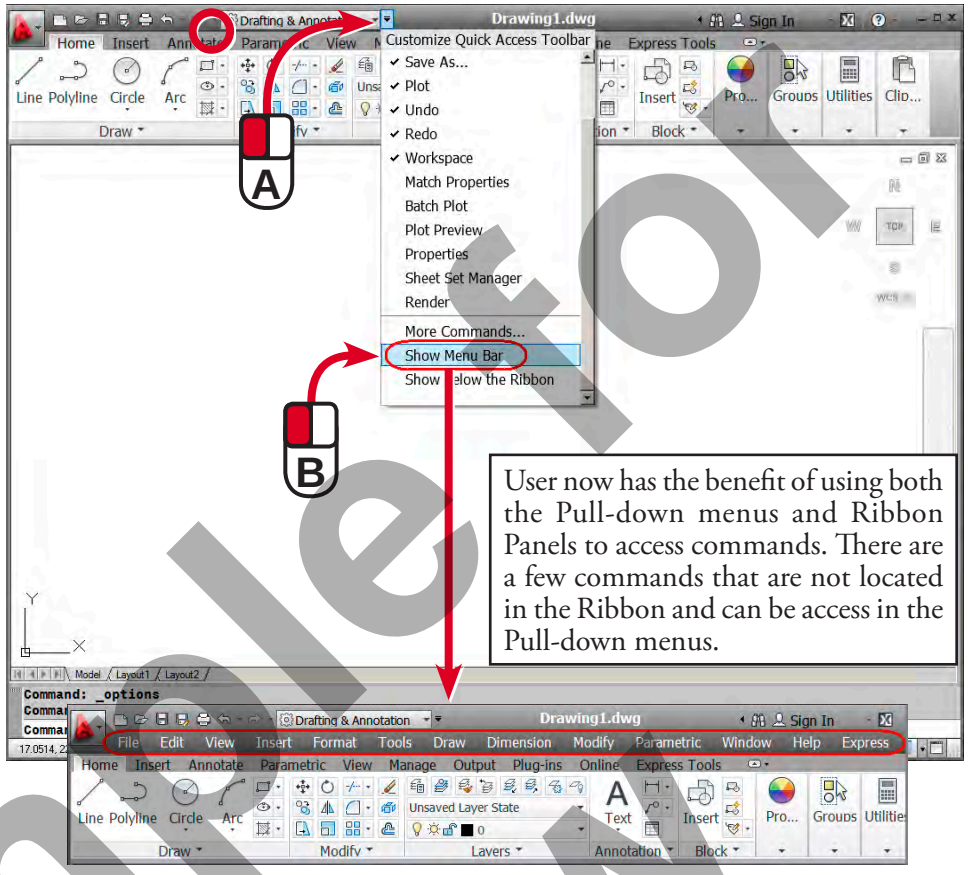
2) **Select** the **Drafting & Annotation** workspace **(B)**.



Optional Hands-On

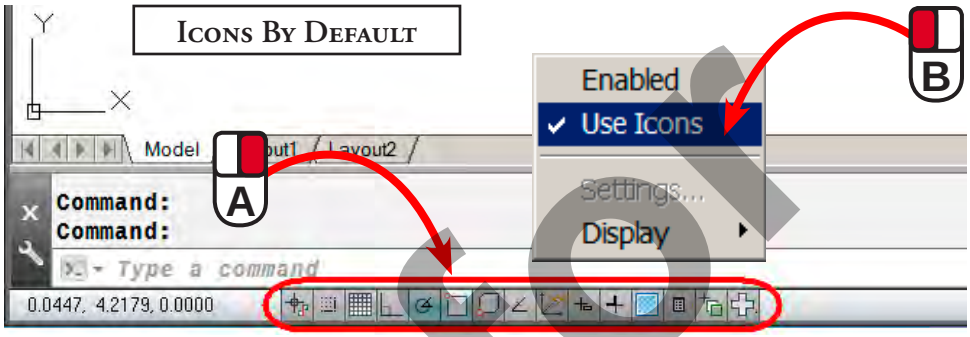
3) **Select** the **down arrow** on the right of the **Quick Access toolbar (A)**.

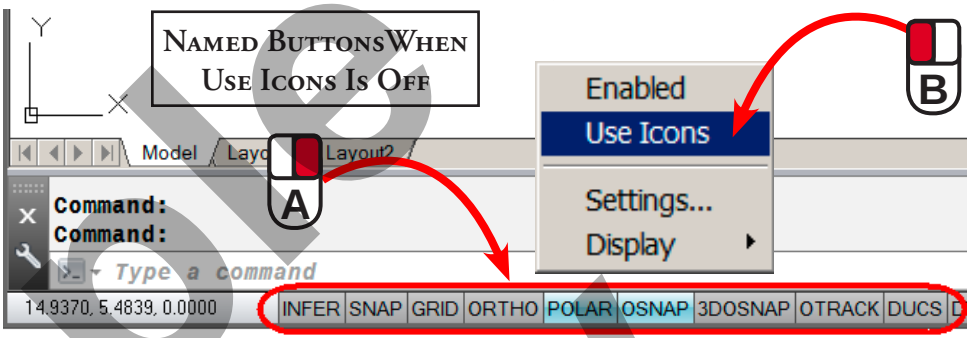
4) **In** the drop-down **menu select Show Menu Bar (B)** to turn on the Pull-down menus.



Workspaces:

7) Decide if you want to use the Icons on the Status Bar for Snap, Grid, etc or the buttons with names. **Right click** on **any icon** on the **Status Bar** and turn **on/off** the **Use Icons (A)**, **(B)**.



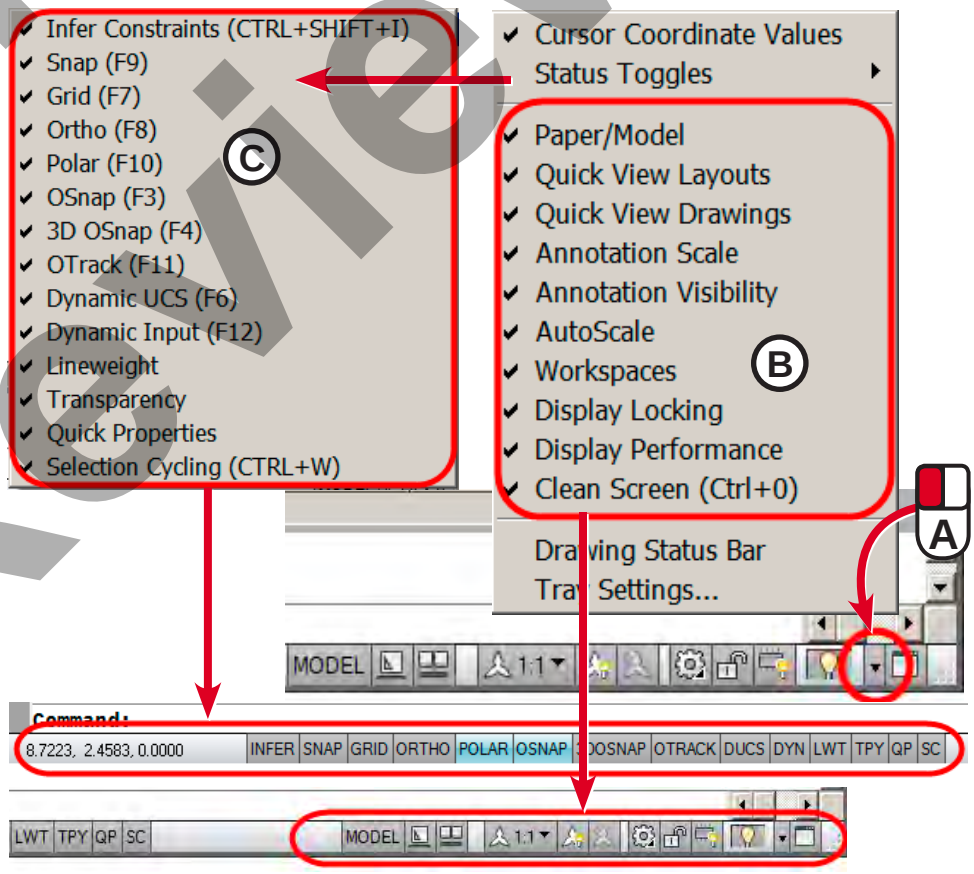


Workspaces:

8) **Select** the **Application Status Bar Menu** button (black triangle) at the bottom right of the status bar **(A)**.

9) In this menu you can **turn on and off** the **Icon** tools that you will **not** be **using**. such as Zoom, Pan, SteeringWheel, etc **(B)**.

10) The **Status Toggles** cascading menu lets you **turn off** the **buttons** on the left side of the status bar that **you may not need** if your work type doesn't use them **(C)**.

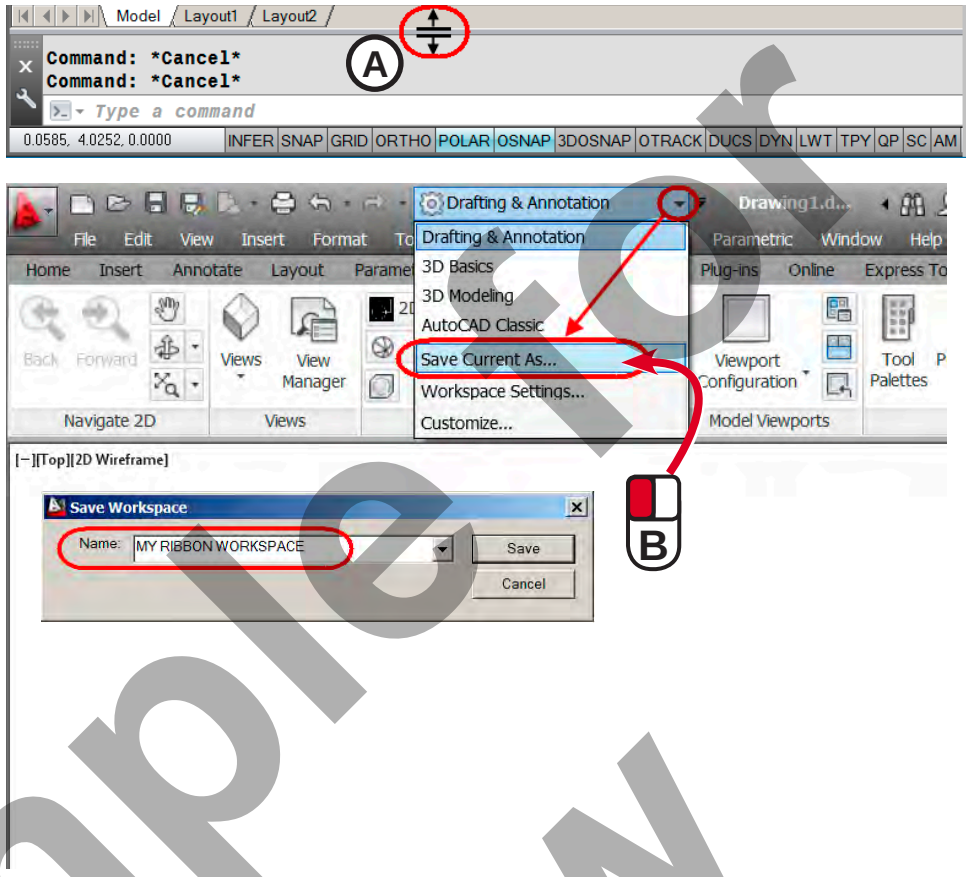


Workspaces:

11) **Adjust the Command Prompt** so that you have 3 lines of text. Move the cursor on the top line of the command prompt **(A)** and drag it till you have 3 lines of text.

12) On the **Quick Access toolbar** select the list arrow **(B)** to open the options menu.

13) In the drop down list **select Save Current As**... and type the name **MY RIBBON WORKSPACE (C)** and select the Save button..

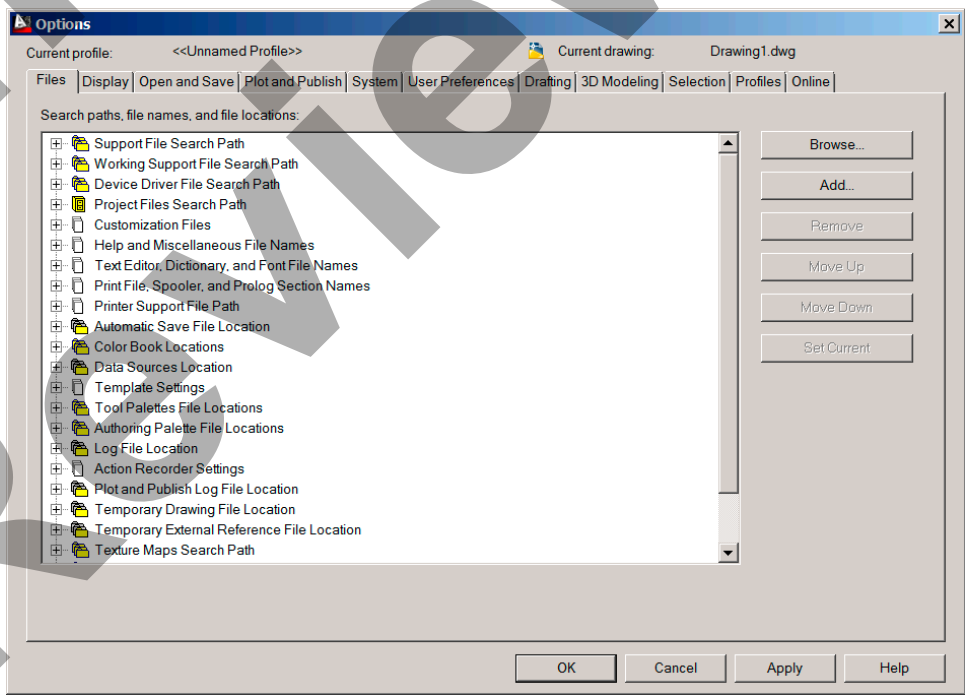


Using Options to Setup AutoCAD

The Options Dialog Box is where you will configure the settings for AutoCAD, such as, the color of the drawing window, etc.

You will learn some of these settings as you go through the course.

At this time it is only necessary to know about this feature and the commands settings.



Here are some suggestions for beginning users to think about when setting up AutoCAD for their type of work.

Display Tab:

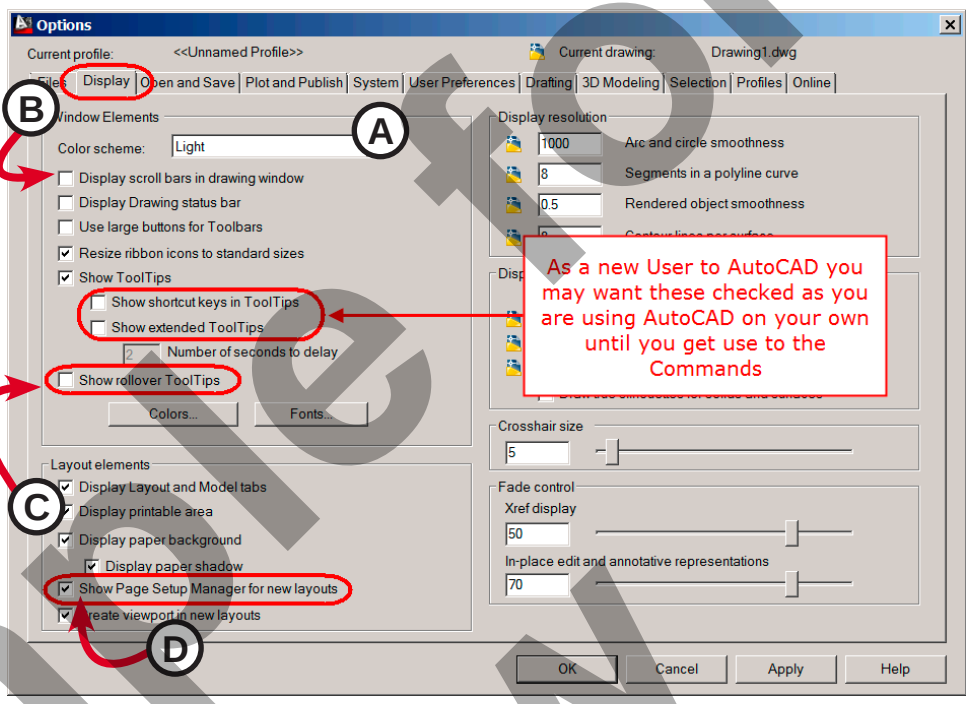
1) In the **Options** dialog box select the **Display tab (A)**.

2) Under the **Show Tool Tips** section unchecked the **Show Shortcut keys** & **Show extended ToolTips (B)**.

3) Unchecked the **Show roll-over ToolTips (C)**.

4) Under the **Layout Elements section Check the Show Page Setup Manager** for New Layouts **(D)**.

Right-click in the drawing area and select Options from the Shortcut menu.



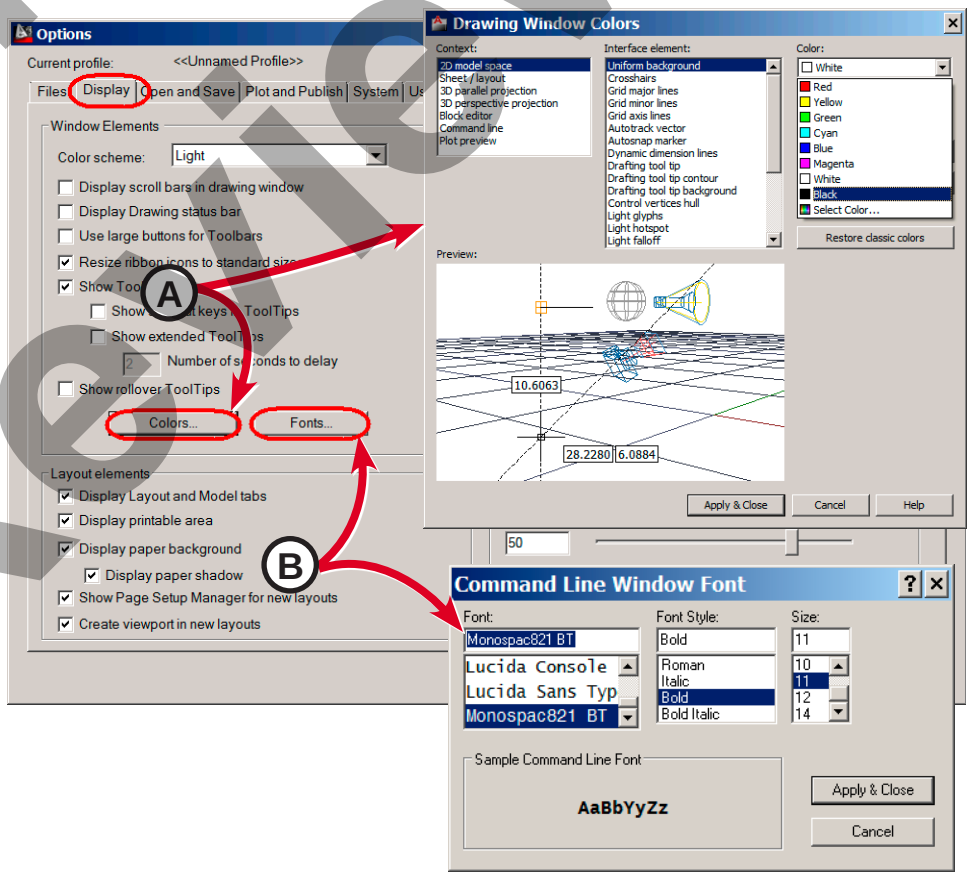
Display Tab:

5) **Select** the **Colors** Button **(A)**:

- **Set** the **2D Model Space background color**, white, black, etc.
- **Set Sheet/Layout background color,** white, black, etc.
- **Select Apply & Close** Button.

6) **Select** the **Fonts** Button **(B)**:

- **Set** the **font type for** your **Command Prompt** & Text Window.
- **Set** the **Font Style** and **Size**.
- **Select Apply & Close** Button.

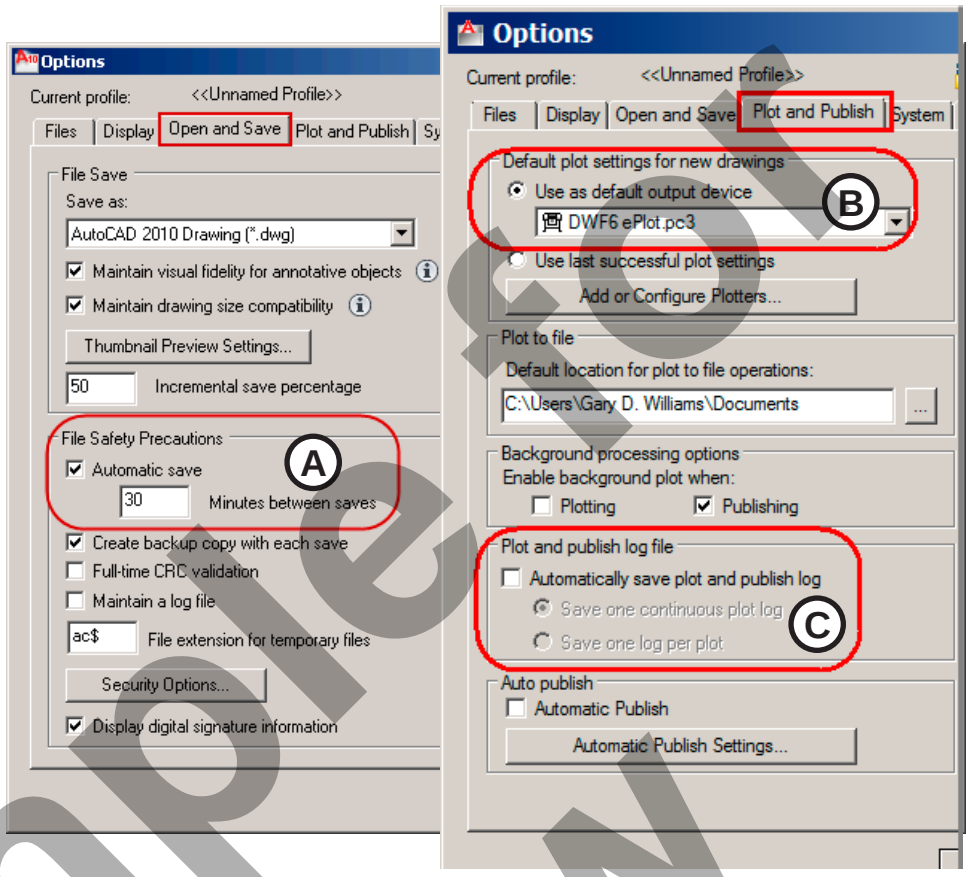


Open & Save Tab:

7) **Check** the **Automatic Save (A)** and **set** the time to 30 minutes.

Plot & Publish Tab:

8) **Set the Default Output Device (B)** to your **default Printer. Set** the **Save Plot Log (C)** to your choice.



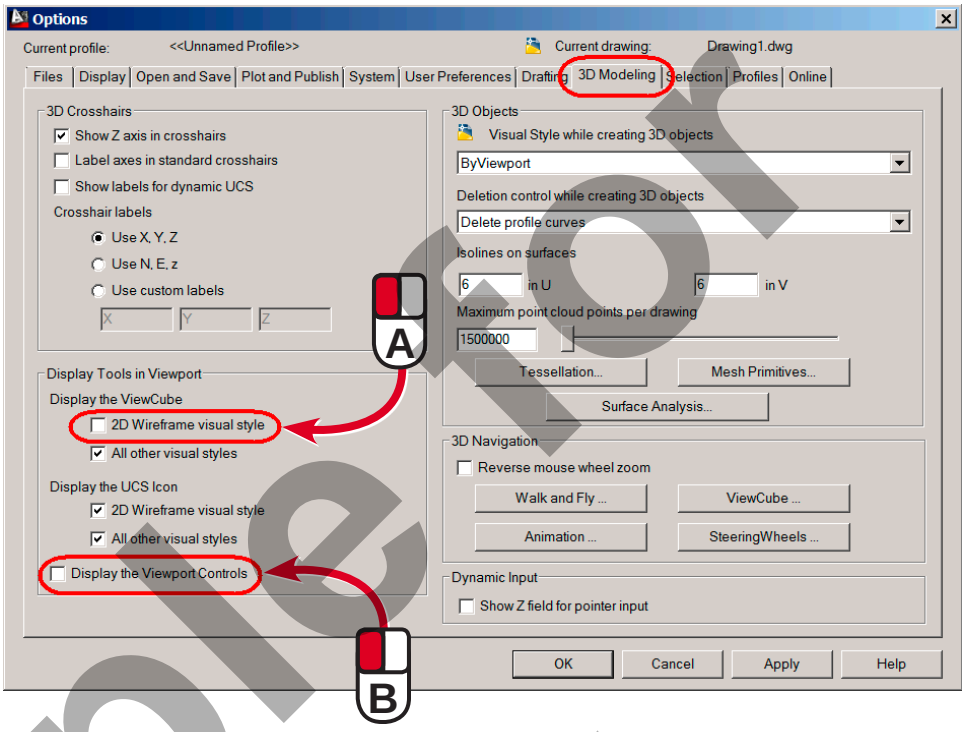
3D Modeling Tab

AutoCAD LT users will not have this section and continue on to the next section

1) **Uncheck** the **Display ViewCube (A)** in the 2D model space in the Display ViewCube or UCS Icon section.

2) **Uncheck** the **Display Viewport controls (B)**

3) **Select** the **OK** button when finish.

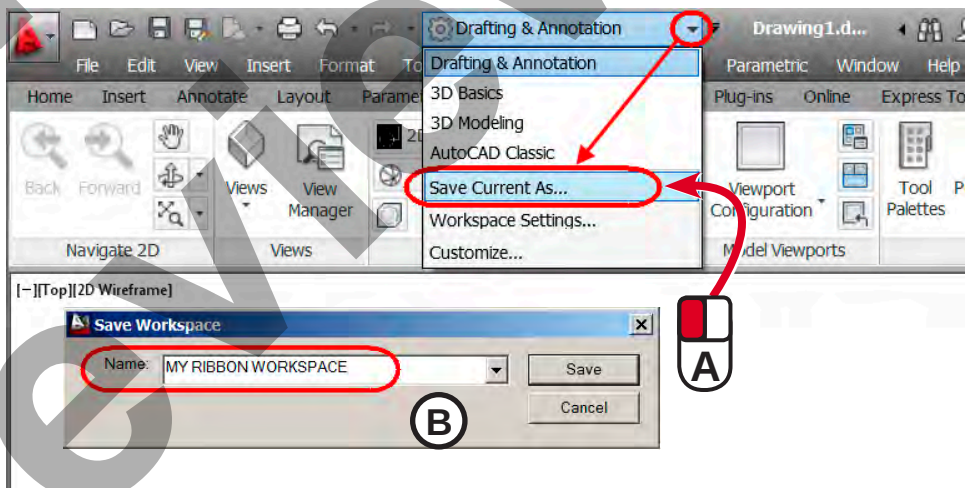


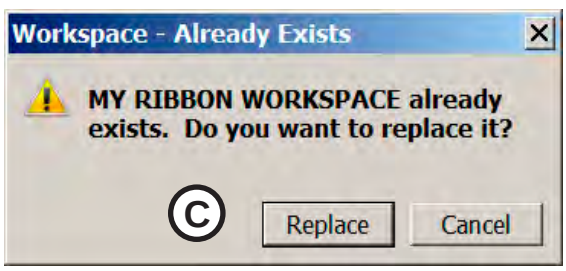
Saving Changes to an Existing Workspace

1) On the Quick Access toolbar select the list arrow (A) to open the options menu.

2) Enter the same name that you gave to your workspace and select Save (B).

3) In the Workspace – Already Exist dialog box **select** the **Replace button (C)**.





AutoCAD Interface Overview

This illustration shows the main components of AutoCAD and the names and terms used.

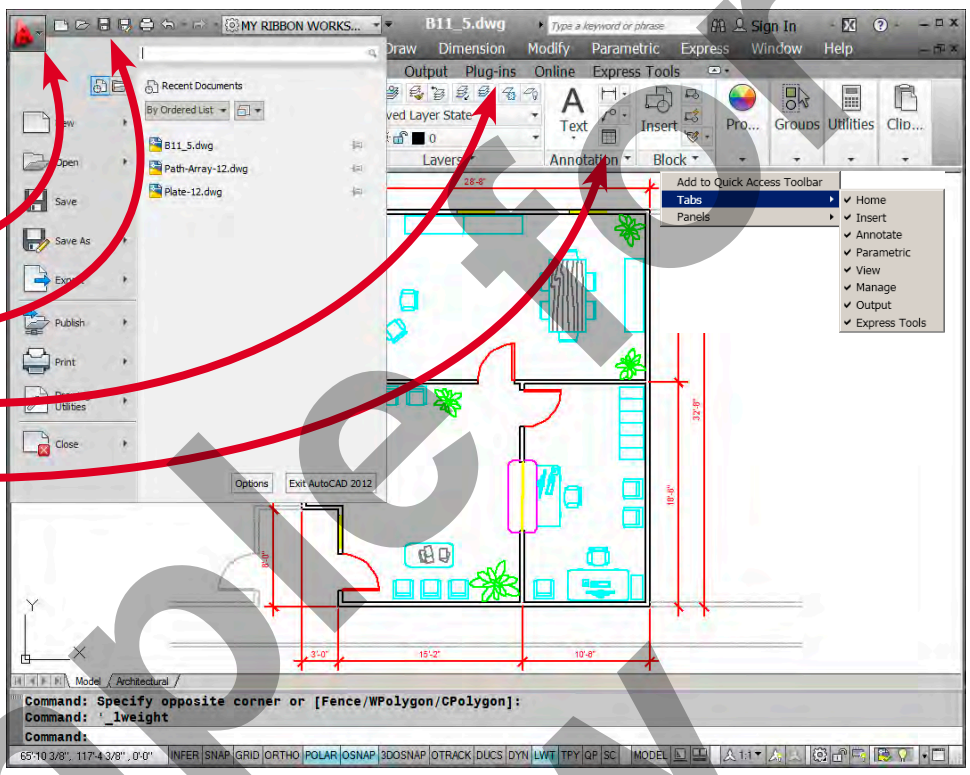
Drafting & Annotation

Application Menu .....

Quick Access Toolbar .....

Ribbon Tabs .....

Ribbon Panels .....



AutoCAD Classic

Windows Title Bar.....

Toolbars.....

Pull-Down Menus .....

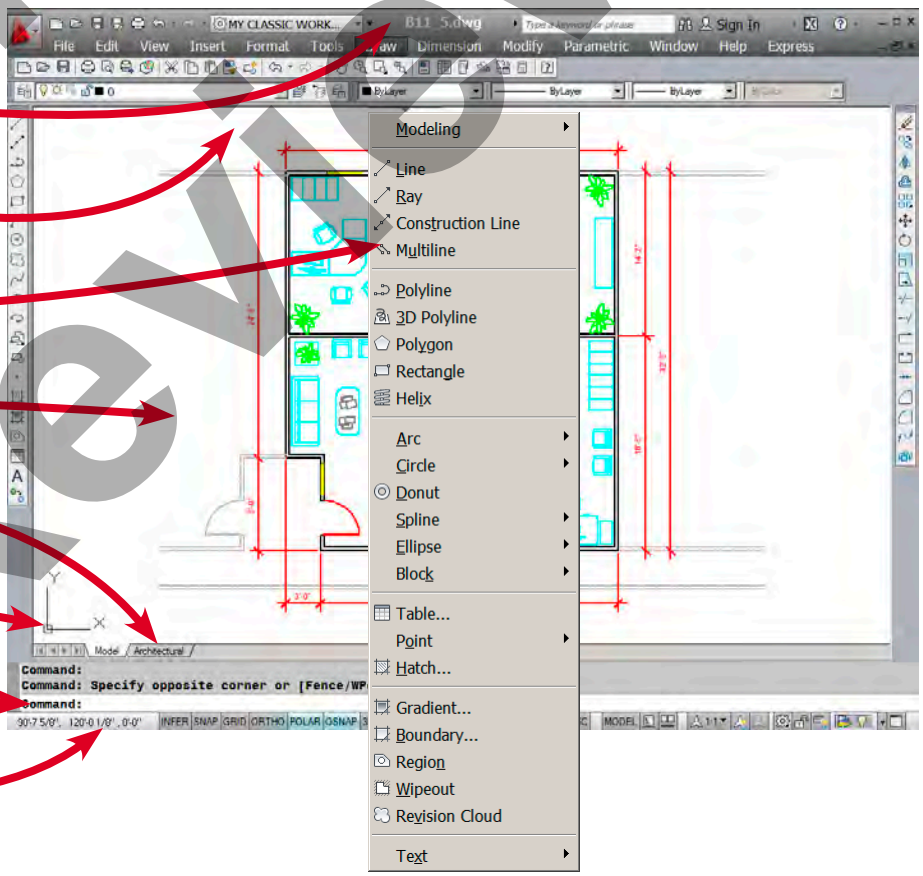
Drawing Area.....

Model & Layout Tabs.....

Ucsicon Display .....

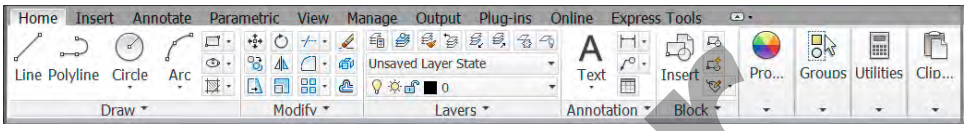
Command Prompt.....

Status Bar.....

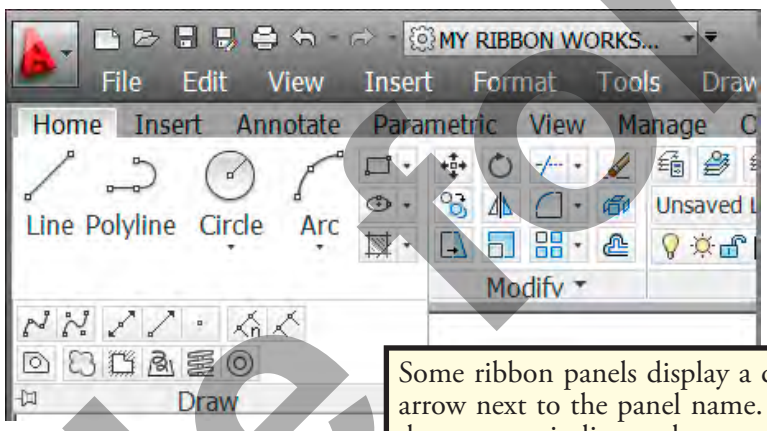


AutoCAD Ribbon

The Ribbon provides a single, compact placement for operations that are relevant to the current workspace. It eliminates the need to display multiple toolbars, reducing clutter in the application and maximizing the area available for work using a single compact interface.



The Ribbon is compose of a series of Panels which are organized into Tabs labeled by Task.



Some ribbon panels display a drop-down arrow next to the panel name. The drop-down arrow indicates there are additional commands related to that panel. Click the drop-down arrow to access the additional commands on that panel.

The Ribbon displays automatically when you create or open a drawing using either the Drafting & Annotation workspace. You can also open the Ribbon manually

- Click **Tools menu>Palettes>Ribbon**
- At the Command prompt, enter ***ribbon.***

AutoCAD Ribbon Bar

The Ribbon has four settings that can used when working with the Ribbon.

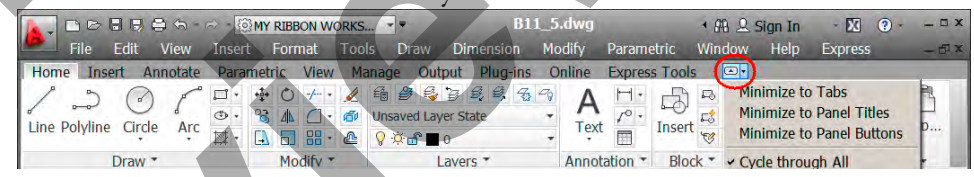
Fully Maximized: By default both tabs and panels are visible.

Minimize to Panel Tabs: Only the tabs are visible.

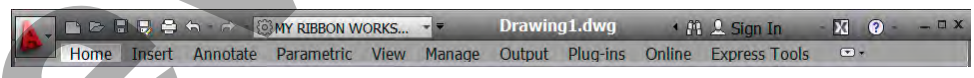
Minimize to Panel Titles: Both the tabs and panel names are visible.

Minimize to Panel Buttons: Panels are shown as icons, select a icon and only that panel opens.

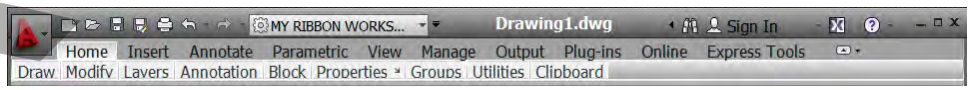
Fully Maximized



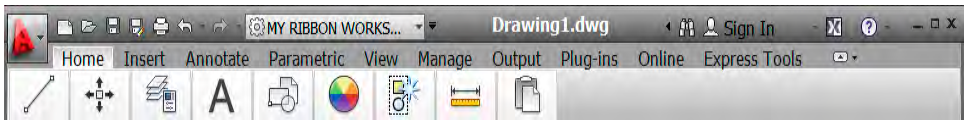
Minimize to Tabs



Minimize to Panel Titles



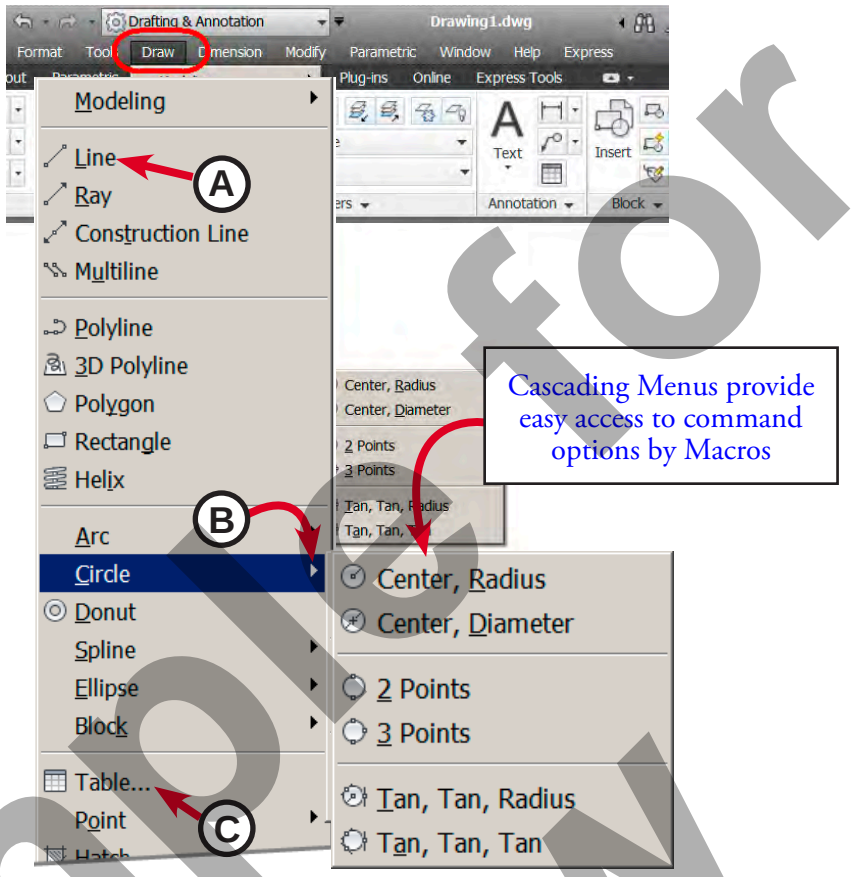
Maximize to Panel Buttons



Pull-down Menus

The pull-down menus provide easy access to AutoCAD commands and settings.

- Command names like Line **(A)** Ray, Polyline, etc are instance commands. When selected they will start that command.
- When you move the cursor over a command name with the block triangle on the right side **(B)** it will automatically open a cascading menu with more commands and macros.
- Command names that are followed by..., such as **Table...** and **Hatch...(C)** will start the command and open a dialog box.

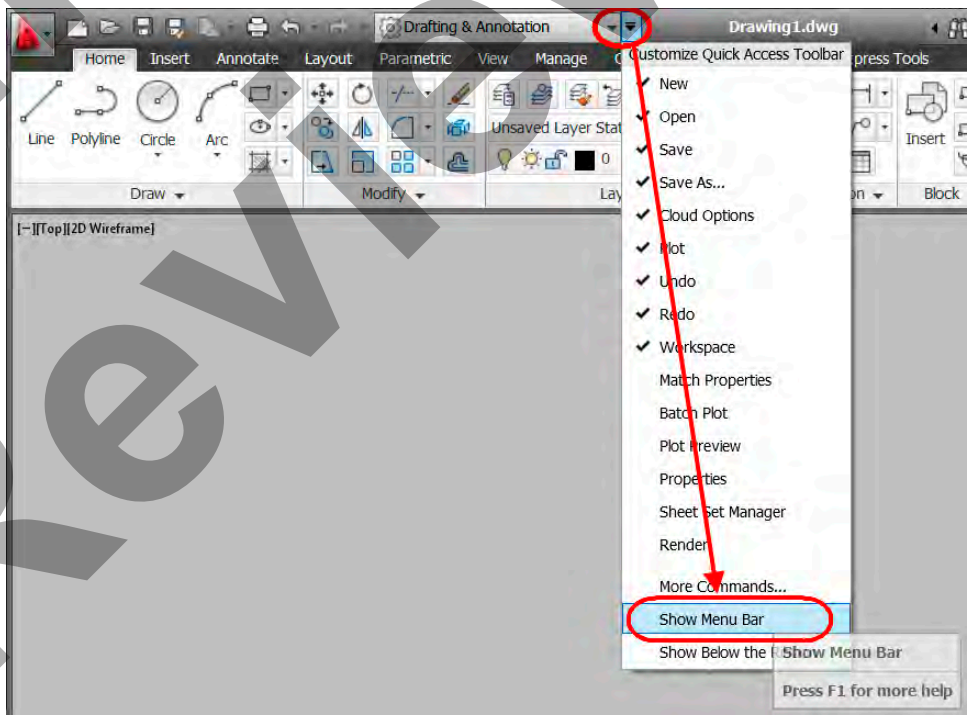


Turning the Pull-Down Menus on

On the Quick Access toolbar and on the right side of the Work Space list left-click on the drop down list to open the Quick Access menu options.

In the list menu select the SHOW THE MENU BAR to turn on the default Pull-Down Menus on.

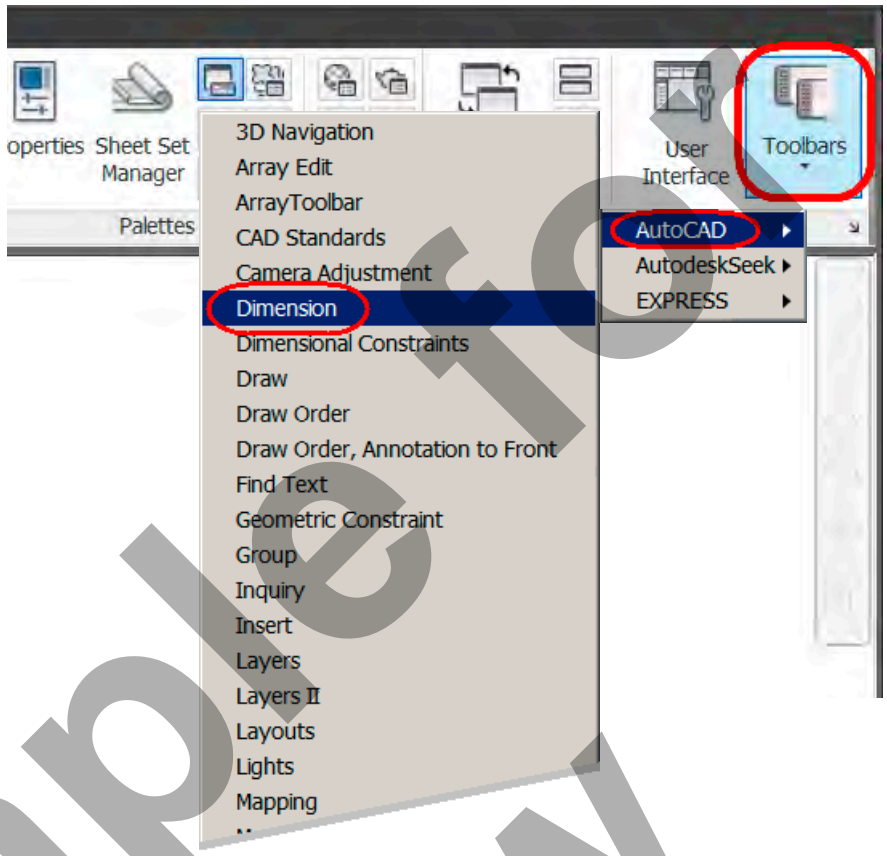
Note: Most commands are located in the ribbon but there are some that are not. And as a user preference you can cut down key strokes using the menus instead of having to change Ribbon Tab and then changing back to the previous tab.



Toolbars

Toolbars provide a fast access to commands without having to open a pull-down menu or changing the Ribbon tabs and then having to open a drop down list and then select the command. Then having to changing back to the previous tab.

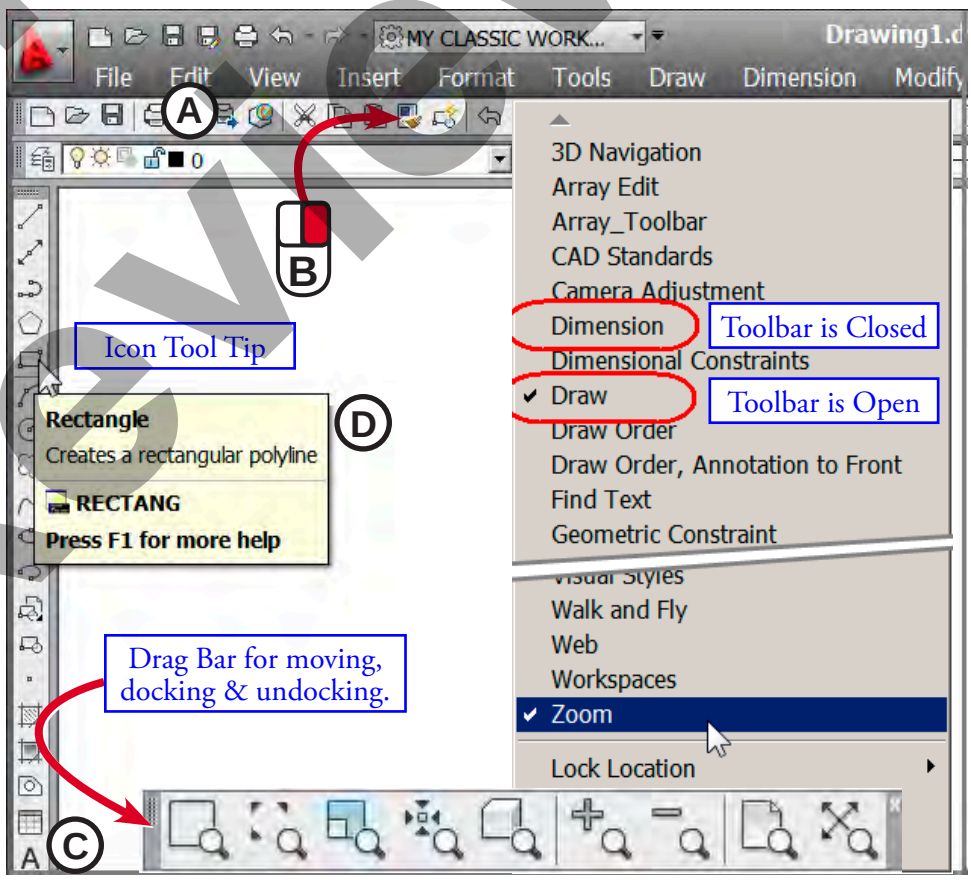
- On the Ribbon select the View tab to open the View Panels.
- On the User Interface panel select the Toolbars icon to open the drop-down list and select AutoCAD to open the Toolbars menu.
- On the toolbar menu select the toolbar to open.



Toolbars

Toolbars provide a fast access to commands without having to open a pull-down menu and then select the command.

- Toolbars can be either free Floating or Docked to the top, sides or bottom of the drawing area **(A)**.
- To Open a toolbars simply Right-click on any icon button **(B)** and select the toolbar to open.
- To move toolbars around and to dock them hold the Left-click mouse button down on the Drag Bar **(C)** and drag it to the location you desire.
- Hold the cursor over an Icon button to get a Tooltip for that command **(D)**.



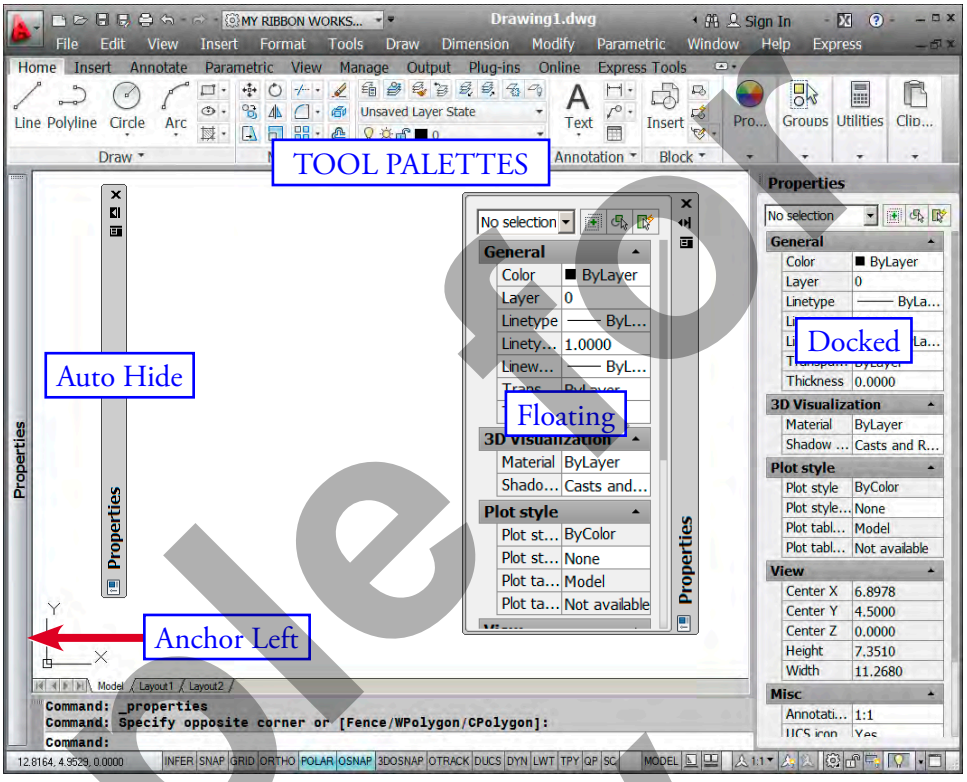
Tool Palettes

Tool Palettes are a cross between dialog boxes and toolbars.

They can be "Floating" in the drawing area where they are not "Docked" and can be set to Auto Hide when not in use.

The can also be Docked to the side of the screen or set to be Anchored to the left or right side of the drawing area.

A list of commands that uses Tool Palettes can be found in the Tools pull-down menu under the Palettes cascading menu.



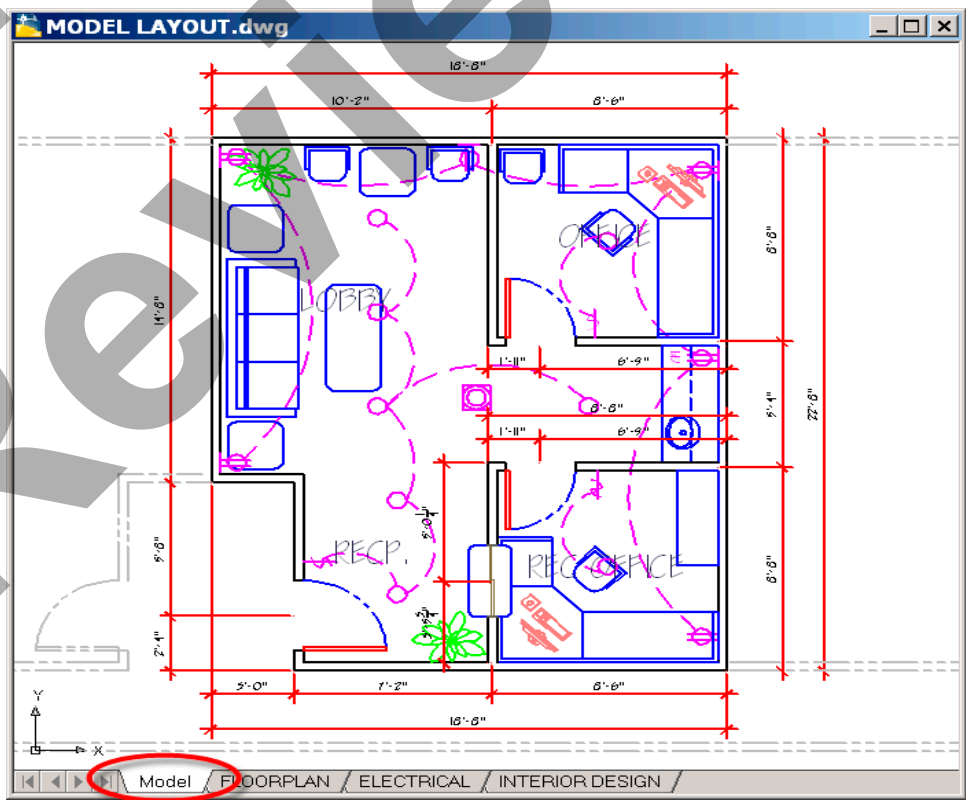
Model Space vs Paper Space (Layouts)

Model Space

Model Space is where you will be doing most of your drawing work.

You will always draw geometric objects at full scale (1:1).

But, text, dimensions, and other annotation elements will be drawn at a scale that will appear at the correct size when the drawing is plotted.



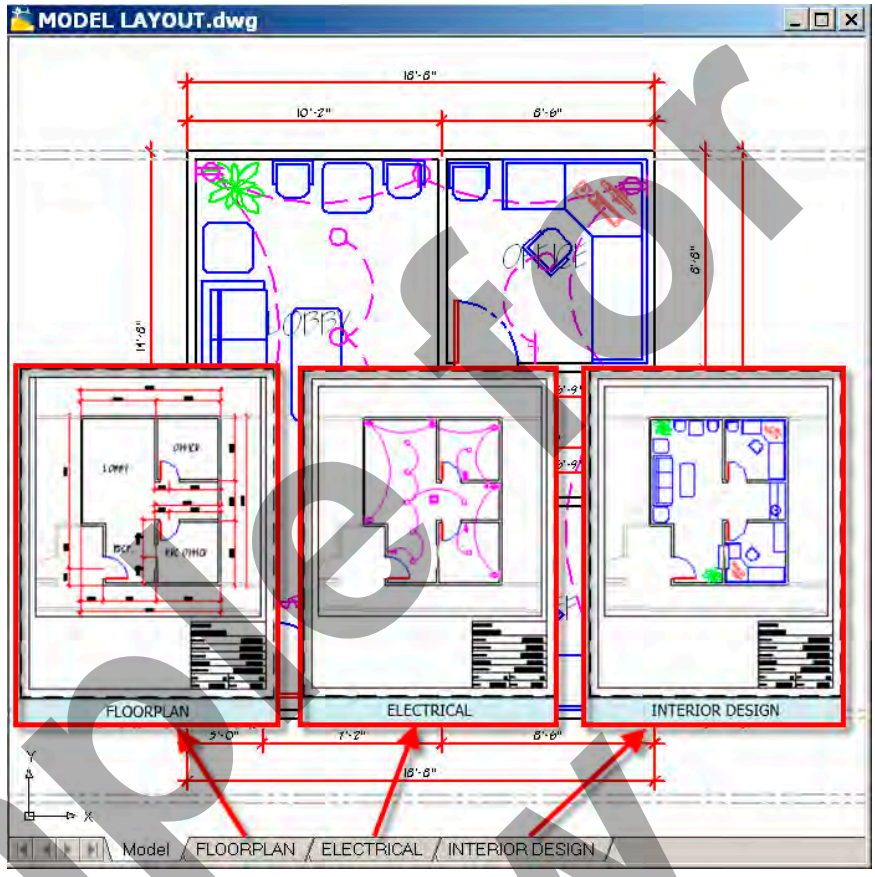
Paper Space - Layouts

Layouts are used to prepare the model space drawing for plotting. Layouts are your Plot Sheets.

You can create multiple layouts of the model in the same drawing file and each layout can use different sheet sizes and plotting parameters and you can control layers between different layouts.

Once a layout has been setup the plot information is saved with that layout making repeat plotting fast and easy.

All layouts are plotted at a plot scale of 1:1.



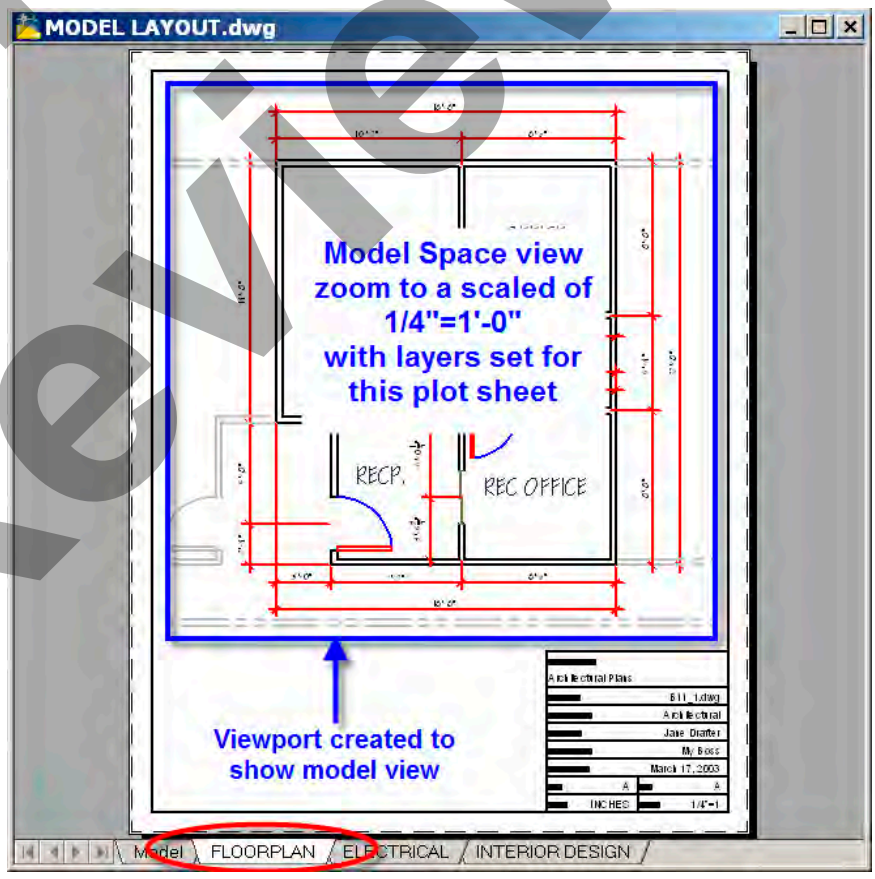
Layouts

After you set up the plot sheet and printer, etc you then create viewports to show the model views as needed.

Viewports are then Zoomed to a scale factor for that view and then locked so that the scale of the viewports will not change when working inside of them.

You can also control layers between viewports and layouts.

This topic will be fully covered in the Page Setup and Plotting section of this book.



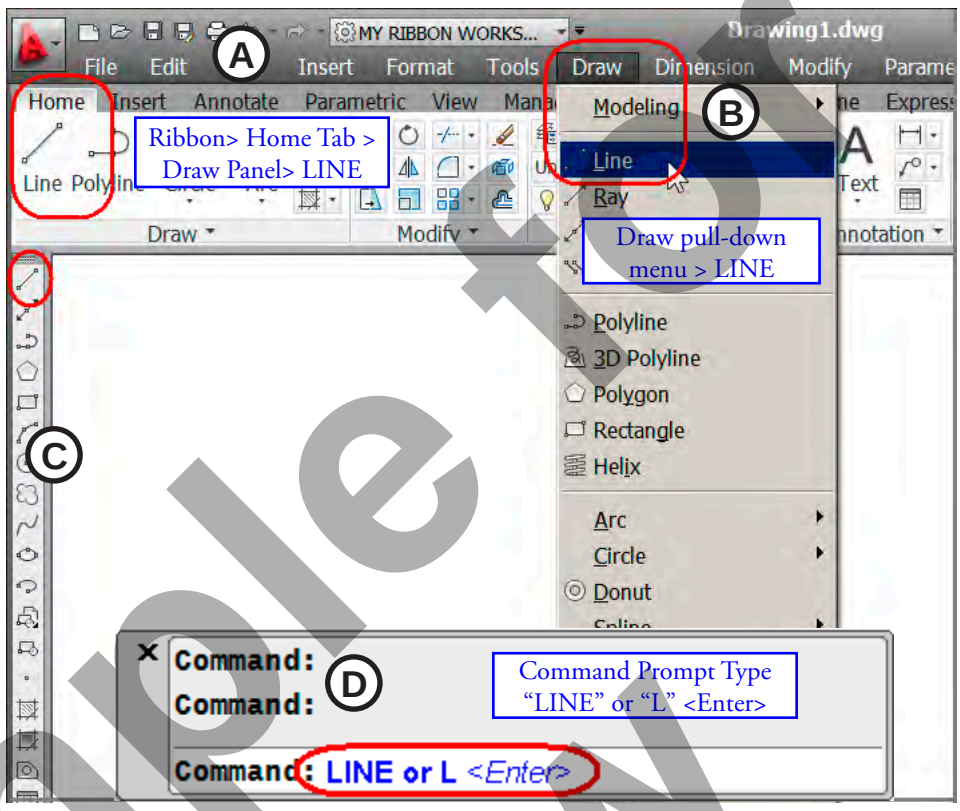
Communicating With AutoCAD

Starting Commands

You can start most commands in several ways using most of the menus. All commands can be typed in and most have Alias (hotkeys). There are a few commands that must be typed in.

For example the image shows the different ways to start the LINE command.

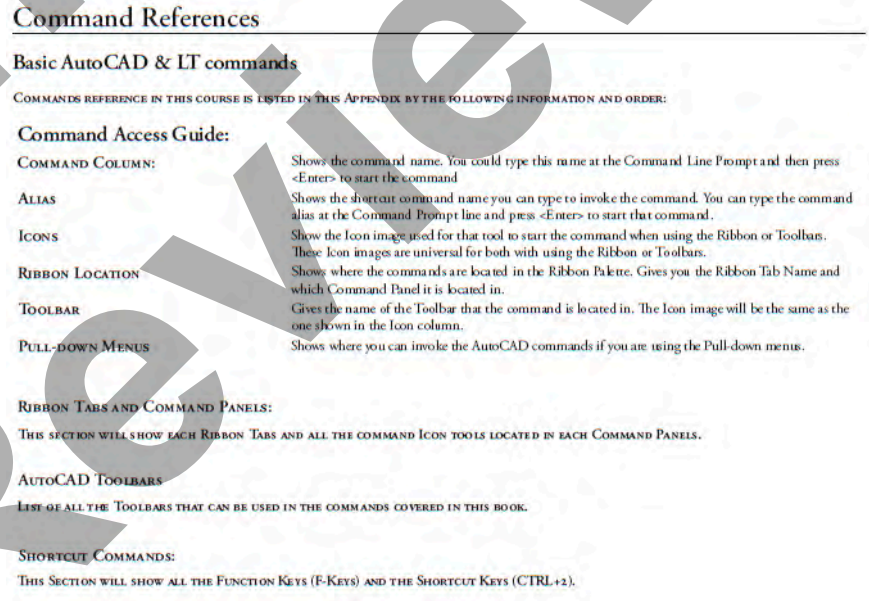
- **Ribbon Bar (A)**
- **Pull-down Menus (B)**
- **Toolbars (C)**
- **Typing in the Command (D)**



Command Access Guide

At the back of the book is a Command References section that has a Command Access Guide for a quick reference on the different ways to activate and use AutoCAD commands.

This section also contains a list of Function Keys, Shortcut Keys, Ribbons and Toolbars.



Command References

Basic AutoCAD & LT commands

COMMANDS REFERENCE IN THIS COURSE IS LISTED IN THIS APPENDIX BY THE FOLLOWING INFORMATION AND ORDER:

Command Access Guide:

COMMAND COLUMN: Shows the command name. You could type this name at the Command Line Prompt and then press <Enter> to start the command

ALIAS: Shows the shortcut command name you can type to invoke the command. You can type the command alias at the Command Prompt line and press <Enter> to start that command.

ICONS: Show the Icon image used for that tool to start the command when using the Ribbon or Toolbars. These Icon images are universal for both with using the Ribbon or Toolbars.

RIBBON LOCATION: Shows where the commands are located in the Ribbon Palette. Gives you the Ribbon Tab Name and which Command Panel it is located in.

TOOLBAR: Gives the name of the Toolbar that the command is located in. The Icon image will be the same as the one shown in the Icon column.

PULL-DOWN MENUS: Shows where you can invoke the AutoCAD commands if you are using the Pull-down menus.

RIBBON TABS AND COMMAND PANELS:

THIS SECTION WILL SHOW EACH RIBBON TABS AND ALL THE COMMAND ICON TOOLS LOCATED IN EACH COMMAND PANELS.

AUTOCAD TOOLBARS

LIST OF ALL THE TOOLBARS THAT CAN BE USED IN THE COMMANDS COVERED IN THIS BOOK.

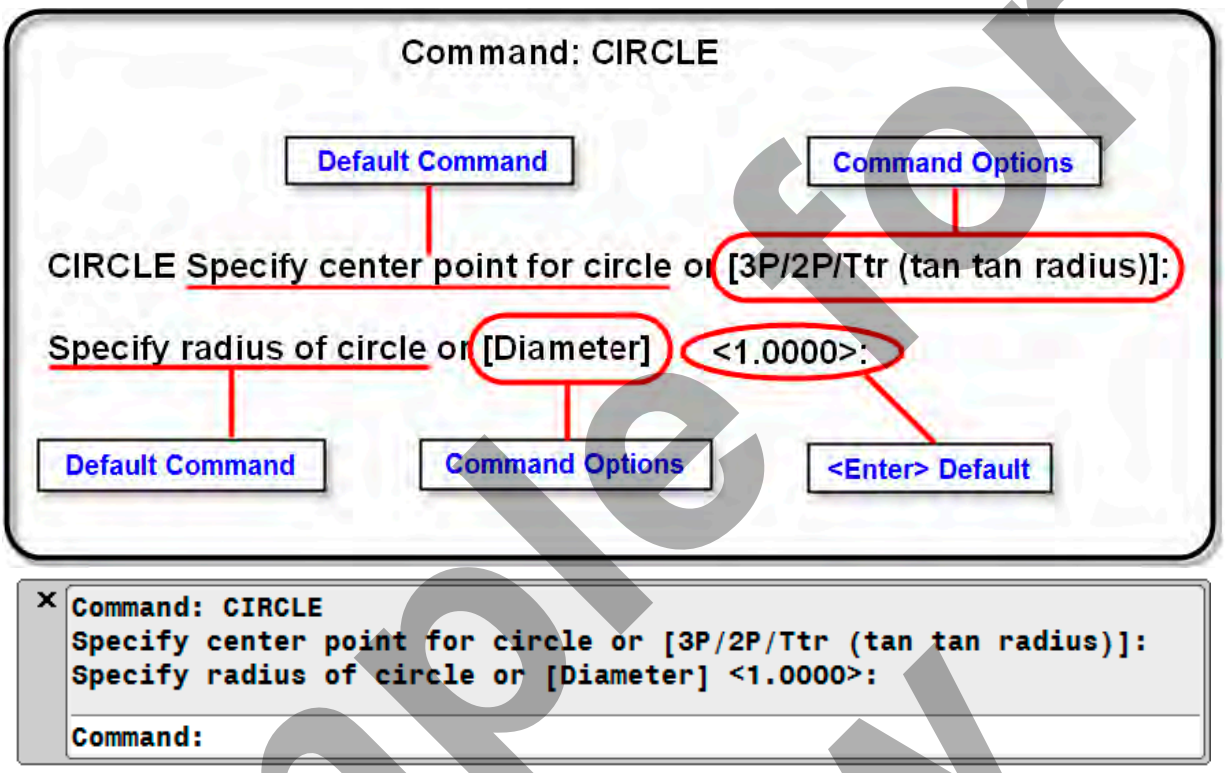
SHORTCUT COMMANDS:

THIS SECTION WILL SHOW ALL THE FUNCTION KEYS (F-KEYS) AND THE SHORTCUT KEYS (CTRL+2).

Command Access Guide

Command	Alias	Icon	Ribbon Location	Toolbar	Pulldown Menu
Divide	DIV		Home tab > Draw panel > Divide		Draw > Point > Divide
Donut	DO		Home tab > Draw panel > Donut		Draw > Donut
Draworder	DR		Home tab > Modify panel > Bring to Front	Modify II	Tools > Display Order > [option]

AutoCAD Command Structure and Options

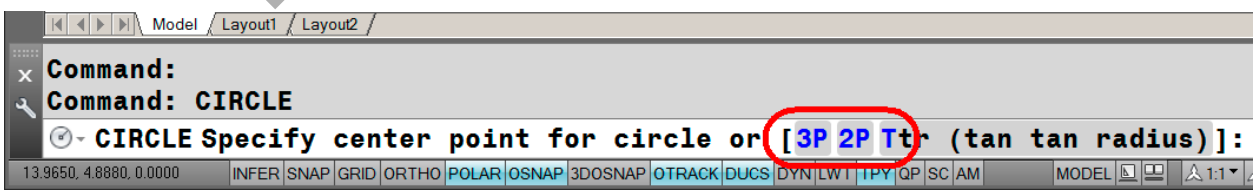


DEFAULT COMMAND INPUT: When you first start an AutoCAD command the first thing you will see in the command prompt is the Default information that AutoCAD wants from you.
Example: In the Circle command AutoCAD wants the Center Point by default. It will not accept anything but a mouse Left-click for the center point, a coordinate, or an Option Keyword typed in.

COMMAND OPTION PROMPTS: If a command has Options (additional things you can do within the command) they will appear within the command prompt in Brackets [Options]. To change from the Default command input to an option in the command prompt just type the capital letter as shown (not case sensitive) for that option.
Example: In the Circle command you could type in 3P for drawing a Circle through 3 point; or 2P for drawing a Circle through 2 points; or T for drawing a Circle Tangent to two objects and centering the Radius.

COMMAND <ENTER> DEFAULT OPTION: Whenever anything appears in the command prompt enclosed in these brackets "<>" then this is an Enter default.
Example: In the Circle command <1.0000> appears at the Radius prompt. Press Enter and you will draw another circle with a 1.0000 radius.

COMMAND OPTION ENHANCEMENTS: Staring in AutoCAD 2013 you are now able to select a command options by left-clicking on the Option at the command prompt.
Example: Start the command and the options are in gray shade with options shown in Blue text for easy viewing. Left-click on the option you want to change to.

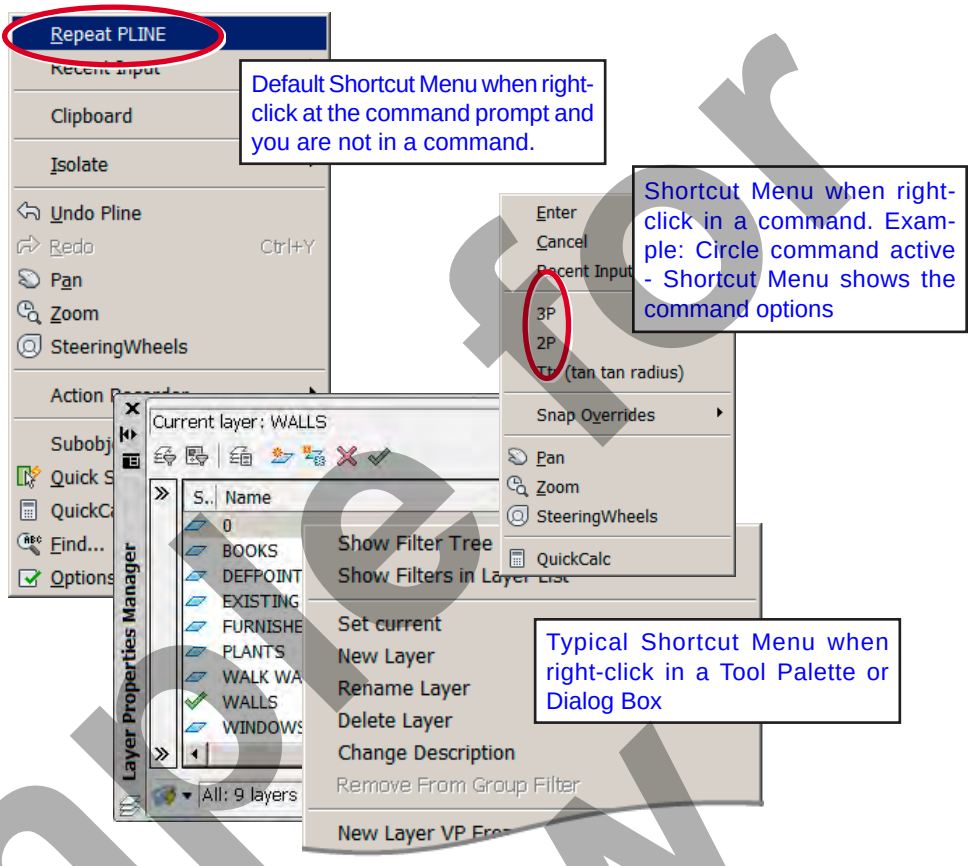


Shortcut Menus

You get the edit shortcut if you right-click in the drawing area when a command is not running and there are objects selected.

The edit shortcut is like the default shortcut except it also has edit options. Some edit options will be specific to the type of objects selected.

If you are in a command you can Right-Click and select options for that command.

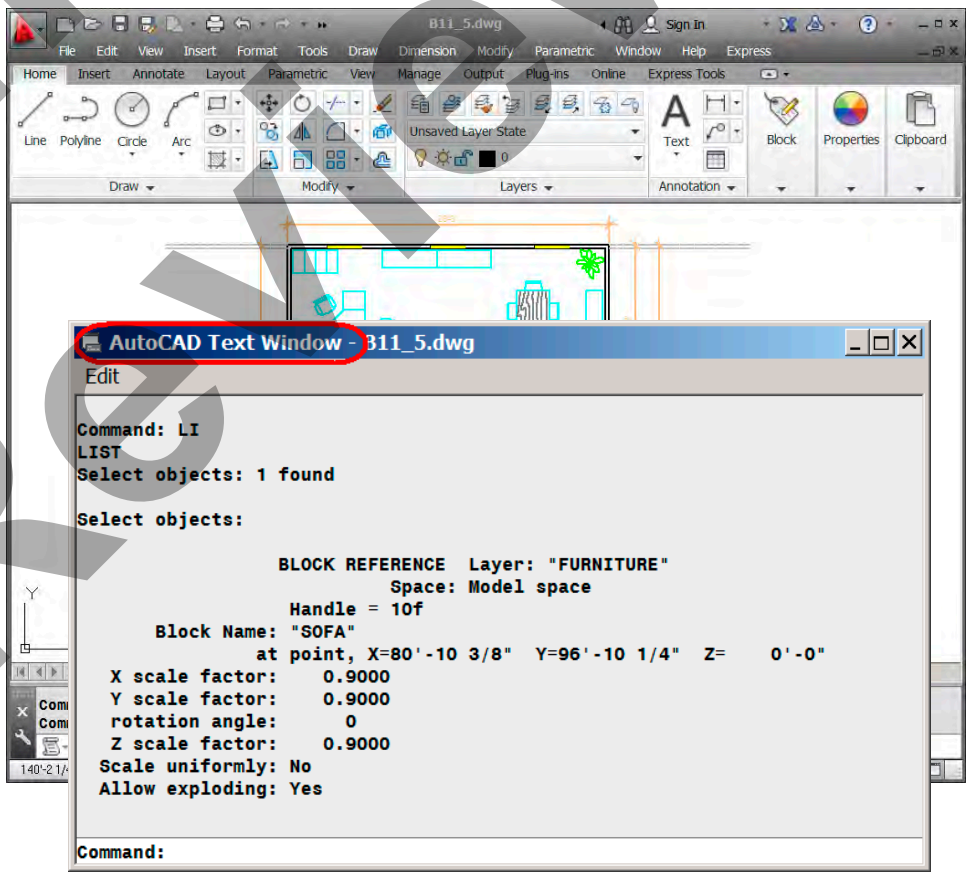


AutoCAD Text Window

AutoCAD occasionally switches to a Text window if there is not enough space to display text of long reports in the command line area.

The text window shows the command line history and you can scroll up to review previous command activity in the current drawing session.

Use the F2 function key to toggle back and forth between these two windows.



Getting Out of Trouble

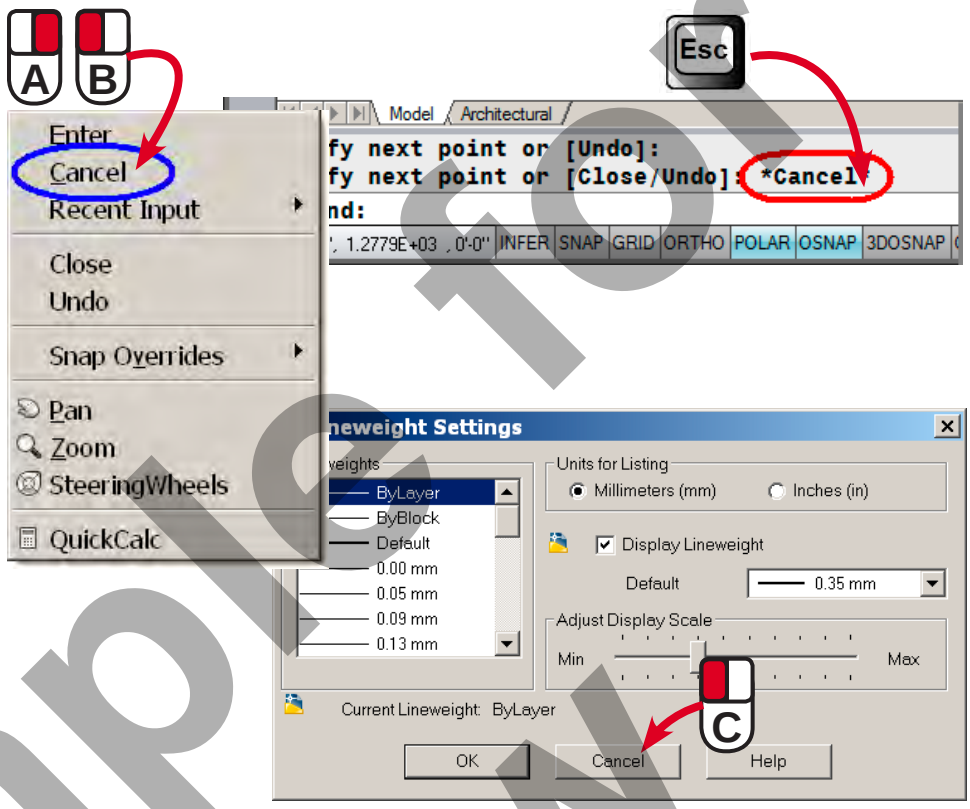
Canceling Commands

If you get into trouble you can normally press **<Esc>** to cancel a command.

You can also **right-click (A)** and select **Cancel (B)** for some commands.

Pick **Cancel (C)** in a dialog box to close the box without performing any tasks associated with that dialog box.

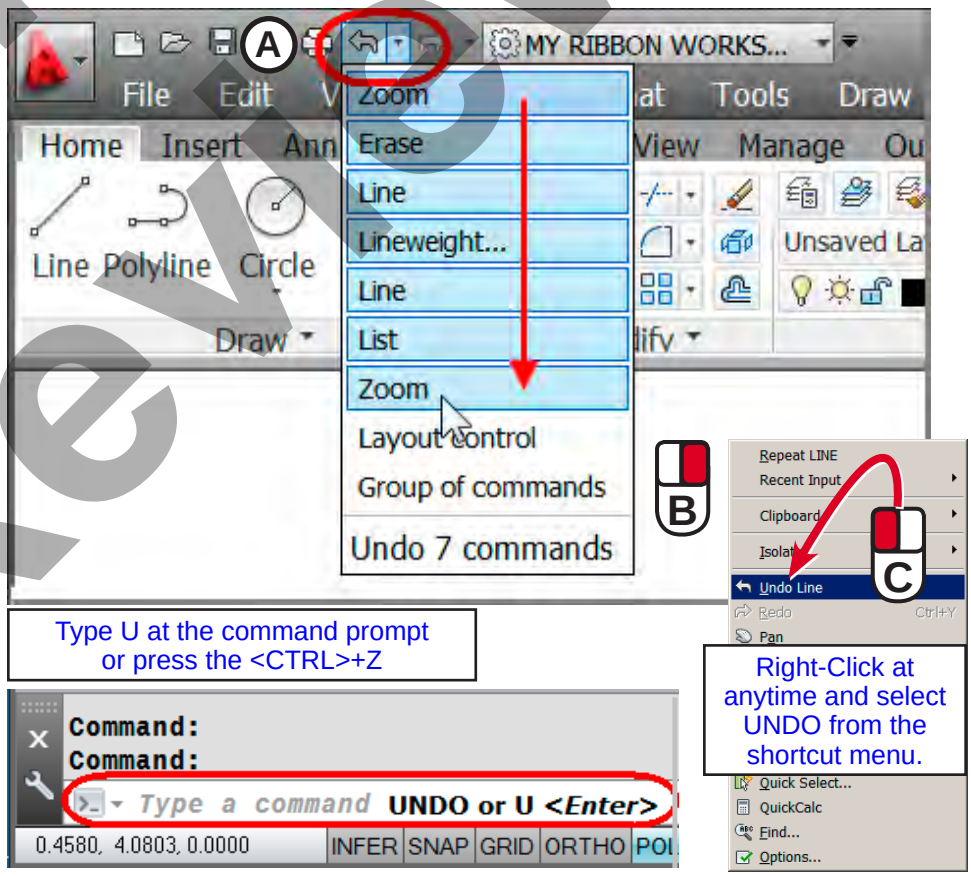
Pressing <ESC> will also close a dialog box and cancel the active command.



Undoing Commands

If you are not satisfied with the results of your last command you can use the **Undo** command to undo it. There are many ways to invoke this command:

- **Type U and press <Enter>**
- **Hold <Ctrl> and press Z**
- **Quick Access toolbar button (A)**
- **Right-click (B) & select Undo (C).**
- You can repeatedly use the **U command** to **undo** commands, one command at a time, right back to the beginning of the current drawing session.

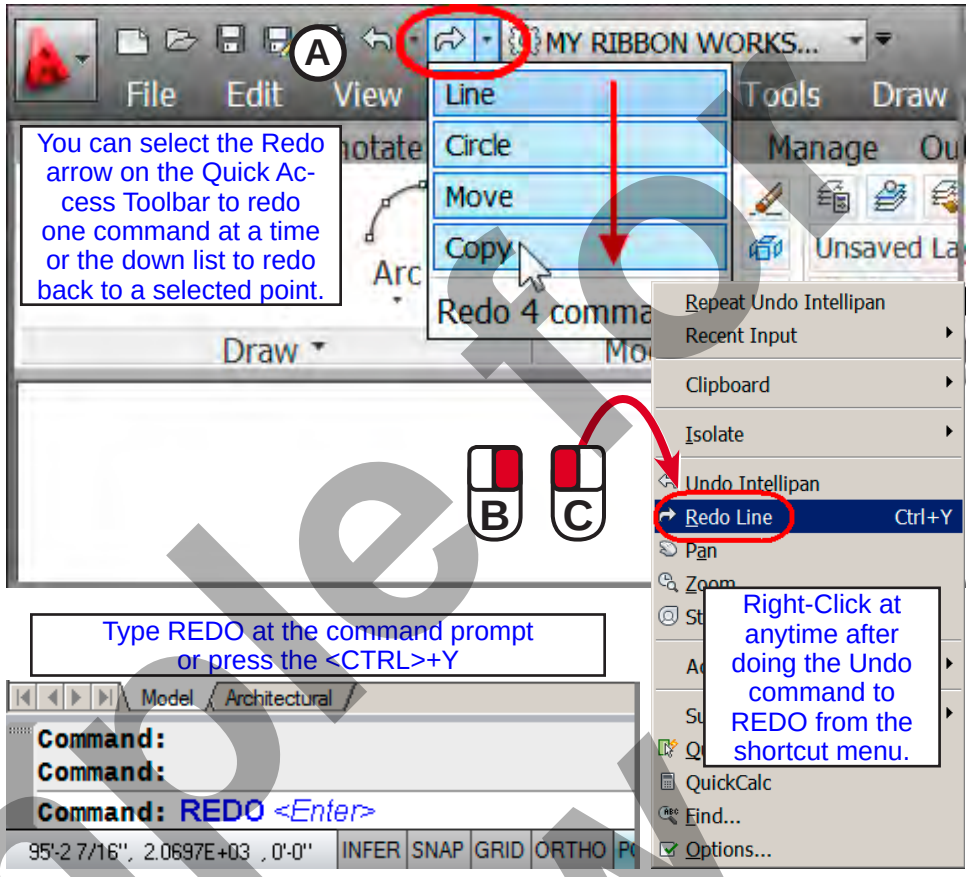


Redoing Commands

You can use the **Redo** command to undo **U and Undo** commands. This is particularly helpful if you undo too many commands. However, you can only use the Redo command immediately after undoing commands.

The Redo command can be invoked several different ways:

- **Type REDO & press <Enter>**
- **Hold <Ctrl> and press Y**
- **Standard and Quick Access toolbar button (A)**
- **Right-click (B) & pick Redo (C)**

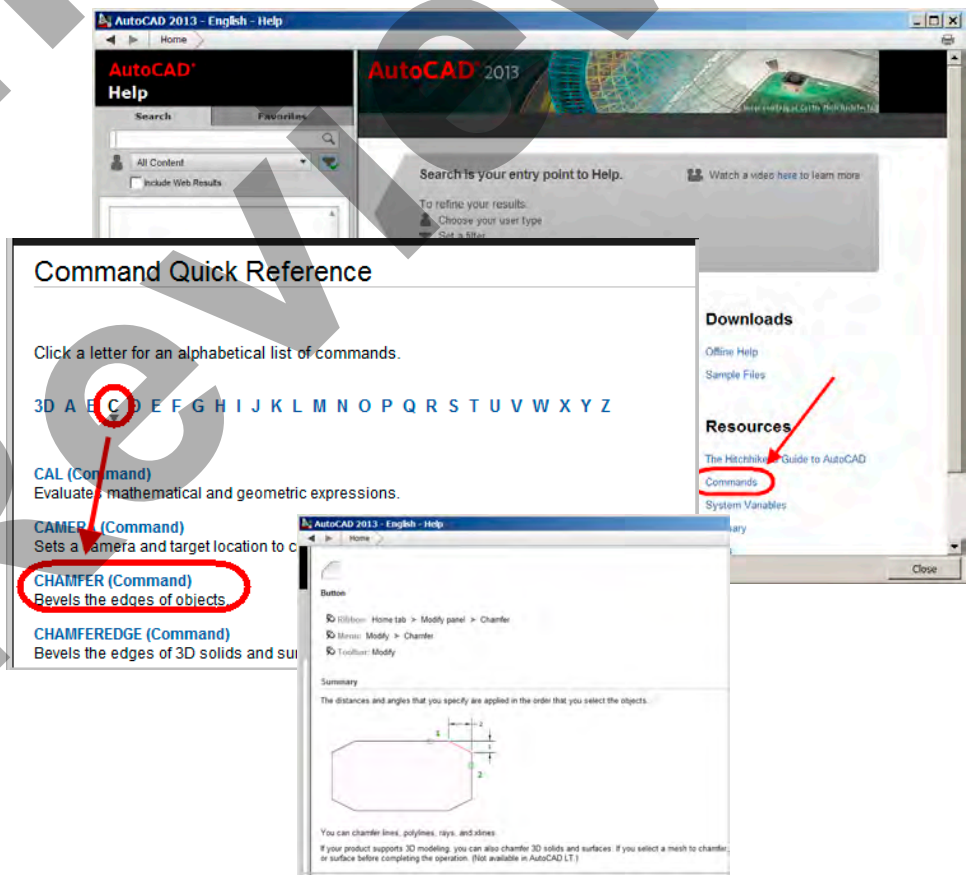


GETTING HELP

As all software you can enter the help command by pressing F1 or use any of the menus in AutoCAD.

As all software you can search by documents, by words and phases and a command search.

You can also start a command and press F1 and that will open the help html file to that command, as a faster way of getting help on a command.

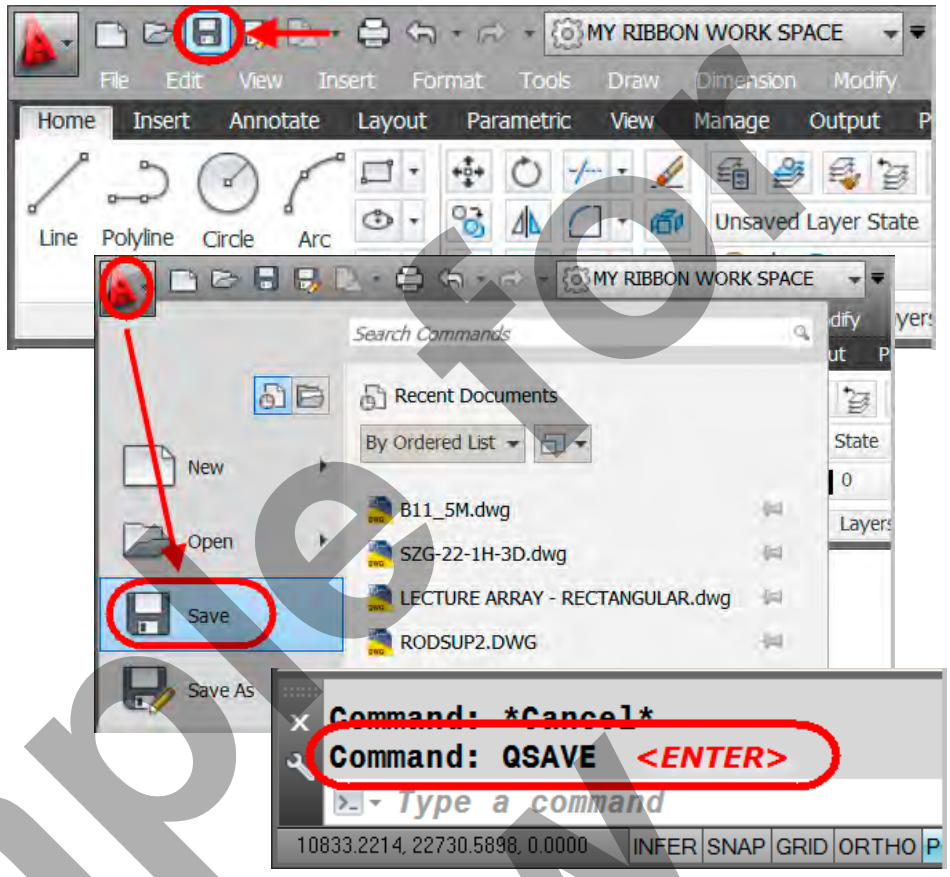


QSAVE Command

Saving your work is vitally important. You should save your work every 10 or 15 minutes or after any process that took time to do. You should save the drawing, using the QSAVE command.

The importance of this command is that every time you do a Qsave it creates a backup file (.BAK) with the same name as the drawing file in the same location as your drawing file.

If your drawing becomes damage and can not open do to a cash, etc. you can rename the BAK back to a DWG and retrieve your drawing back.



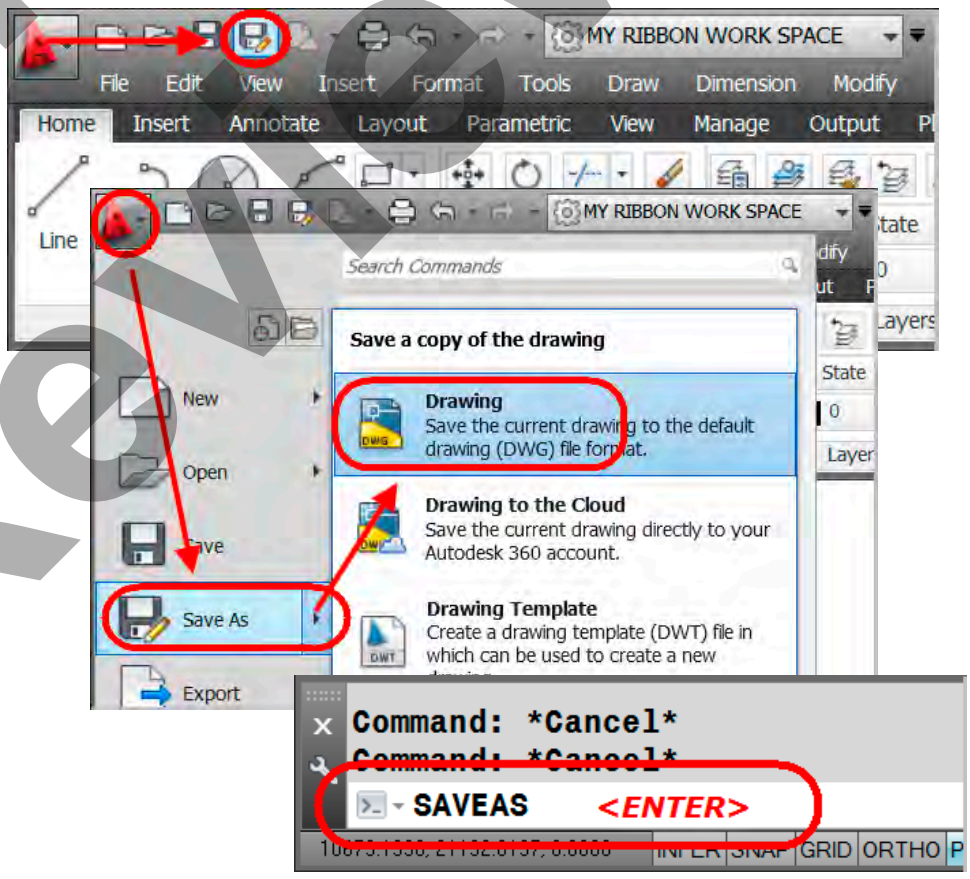
SAVEAS Commands

If you select the SAVEAS command AutoCAD will bring up the Save Drawing As dialog box, even if the file is already named.

You can then save it under the existing name or give it a new name and another location.

Using the SAVEAS command will close the existing drawing (without saving it) and make this drawing the current file in AutoCAD.

Note: SaveAs does not create a backup file like the QSAVE command does



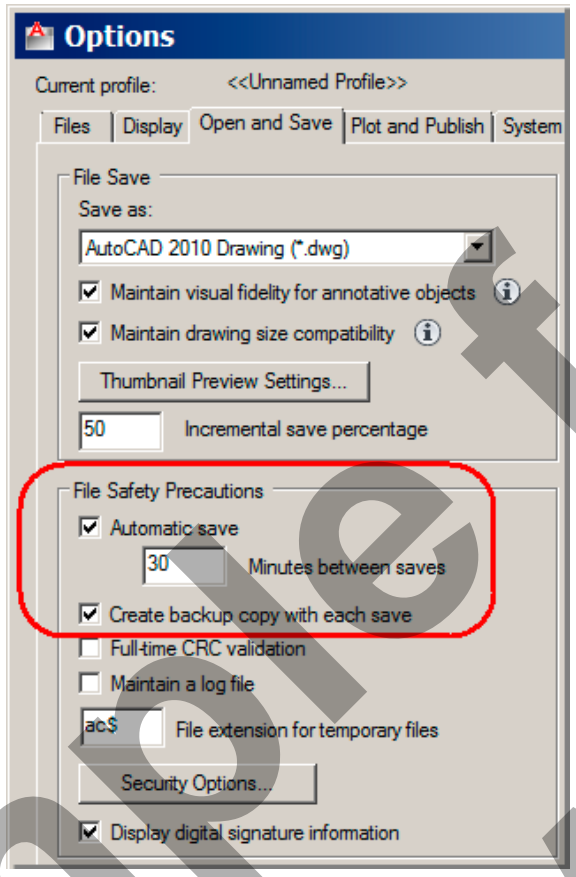
Automatic Saves

To prevent losing your day's work in the event of a power interruption, it is a good idea to save your work periodically. AutoCAD allows you to save your drawing automatically to a file with the extension SV$. To turn this feature on or off, and control the interval between saves:

1) Open the Options dialog box (Tools>Options).

2) Switch to the "Open and Save" tab.

3) Check the Automatic Save check box to turn the feature on, and set to 30 minutes between saves.



Note:
Make sure you have Create Backup Copy checked.

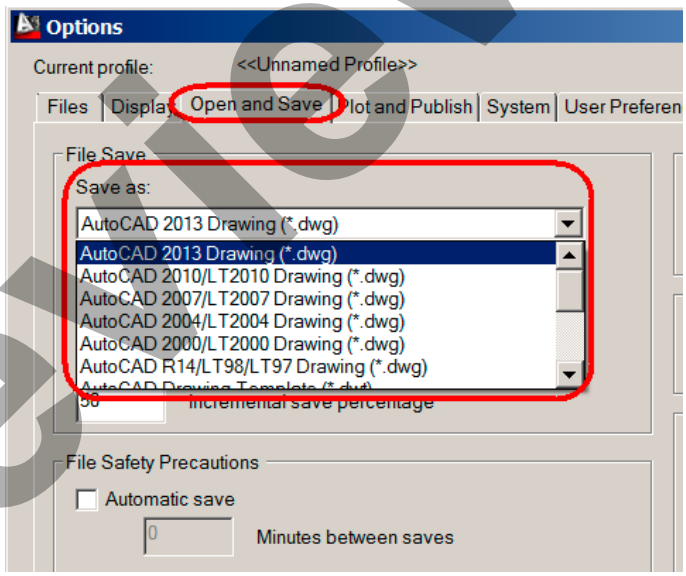
AutoCAD Releases Compatibility

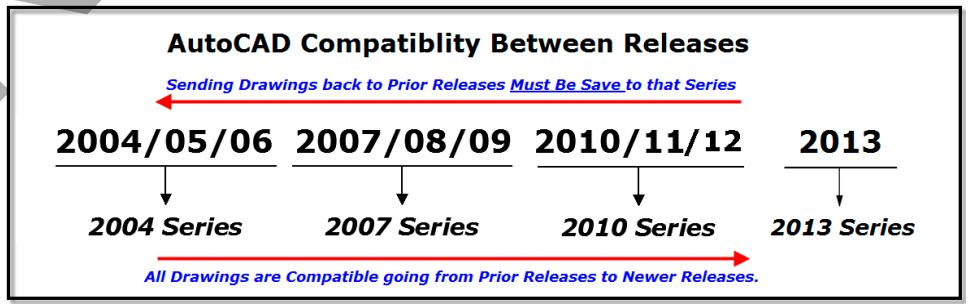
AutoCAD drawing files are only compatible within their release series.

Example: A drawing created in 2012 can be opened and edited with either 2010 or 2011. This drawing cannot be opened in earlier releases of AutoCAD.

You will need to do a SAVEAS back to older release series in order for the drawing to be opened for editing in those versions.

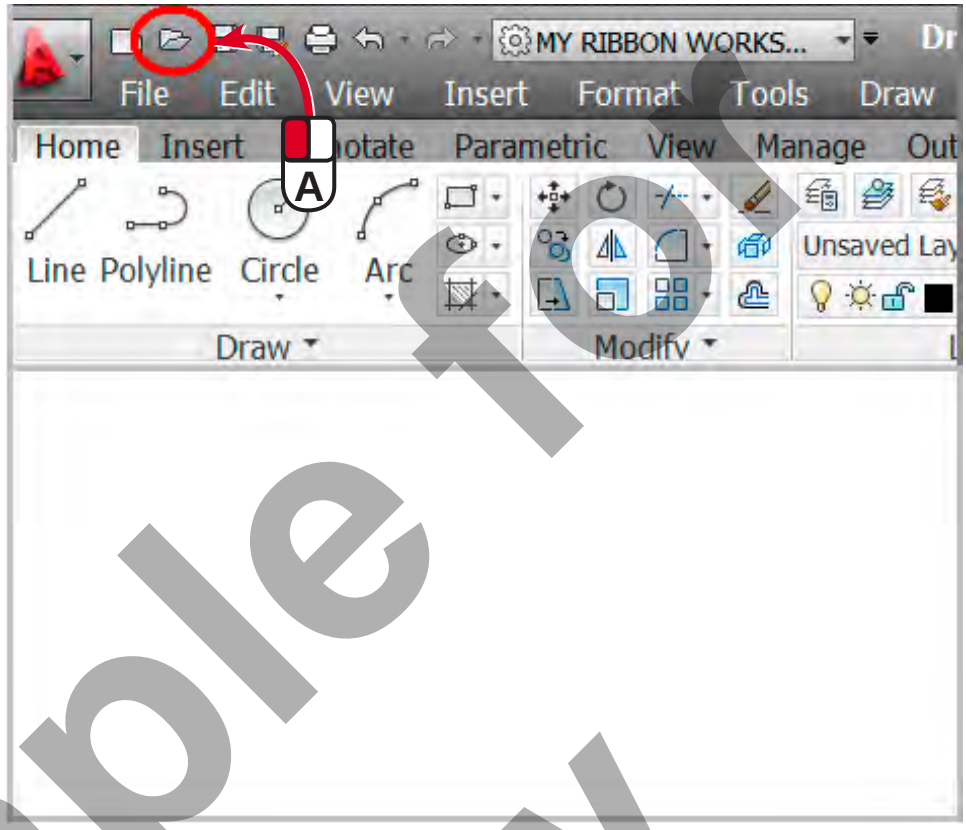
All drawings are compatible going forward. A drawing from R-2000 can be opened in the 2004 and 2007 series.





Optional Hands-On

1) **Select** the **Open** a Drawing Icon tool **(A)** from the Quick Access toolbar.

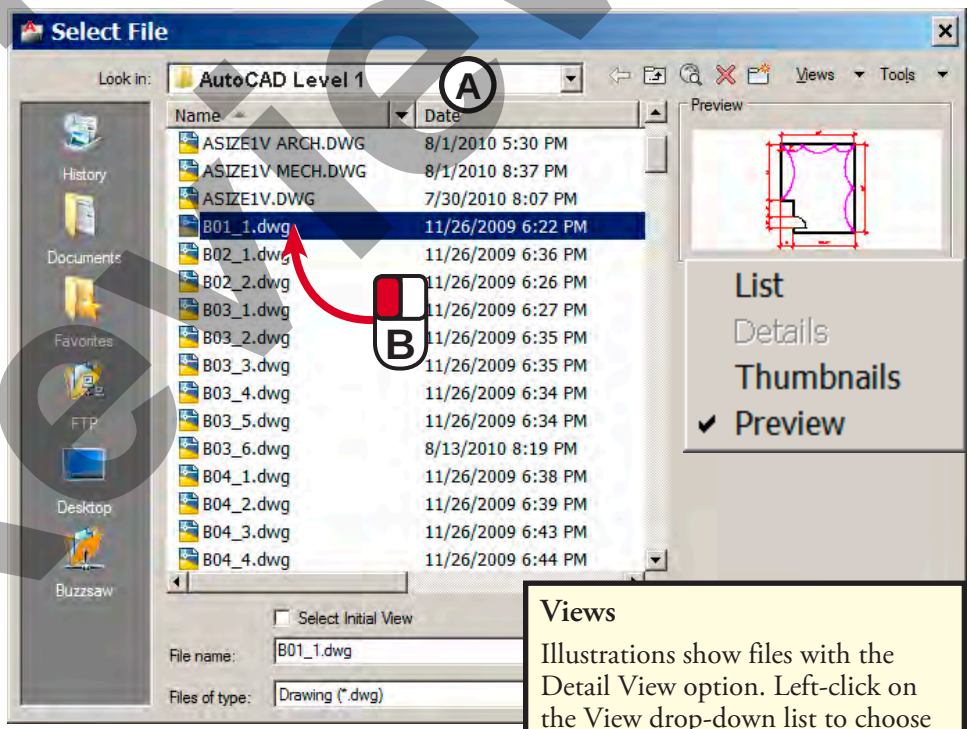


Exercise Objectives?
This exercise will apply some of the tools that were covered in the previous lecture.

Optional Hands-On

2) In the Select File dialog box **navigate** to your **personal folder (A)** where all the drawing files for hand-on exercises are stored.

3) **Double left-click on B01_1.dwg (B)** to open this drawing.



Views
Illustrations show files with the Detail View option. Left-click on the View drop-down list to choose other view options. You can also select Preview in the Views drop-down list to show a preview of the selected file.

Result:
You have used the Open command to open an exercise file to be used for this hands-on.

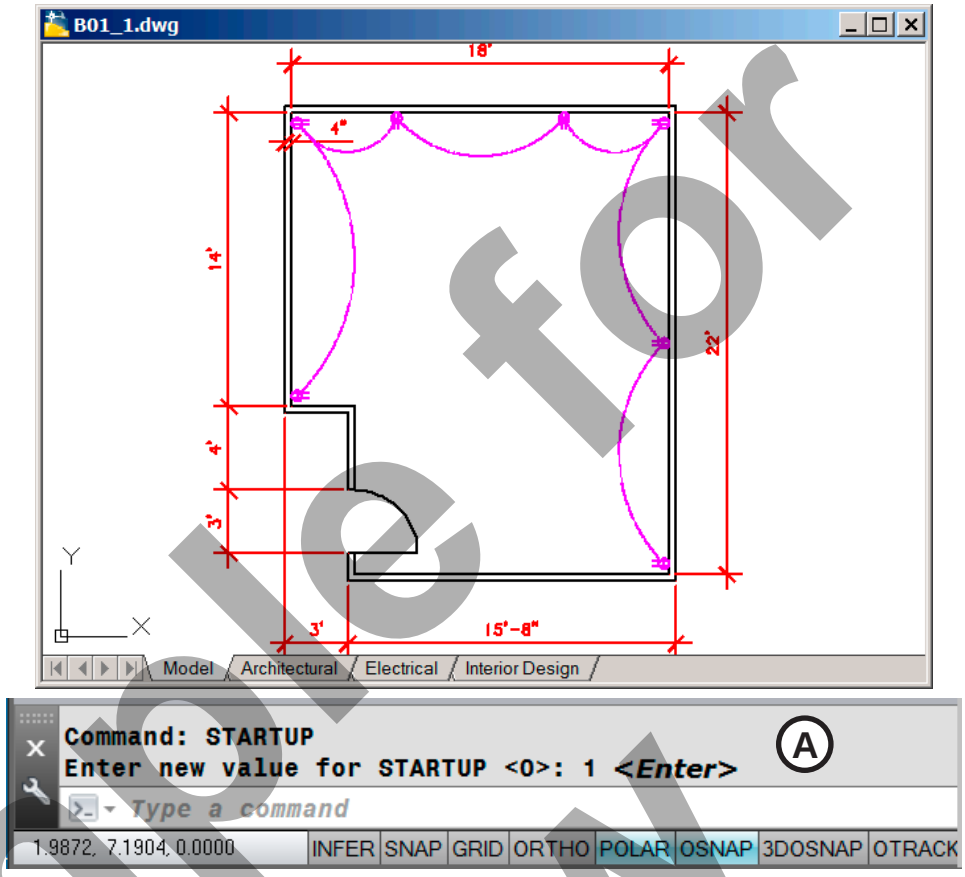
Optional Hands-On

Note: The drawing file opened up in the same state as it was saved and closed in from the last edit session.

4) At the Command prompt **type STARTUP <Enter>**.

5) At the *Enter new value for STARTUP <0>:* **type 1 <Enter> (A)** to turn the Optional Startup menu on.

Result:
You have opened the drawing file for this exercise. And you have turned on the Optional Startup menu which will be used in this course.

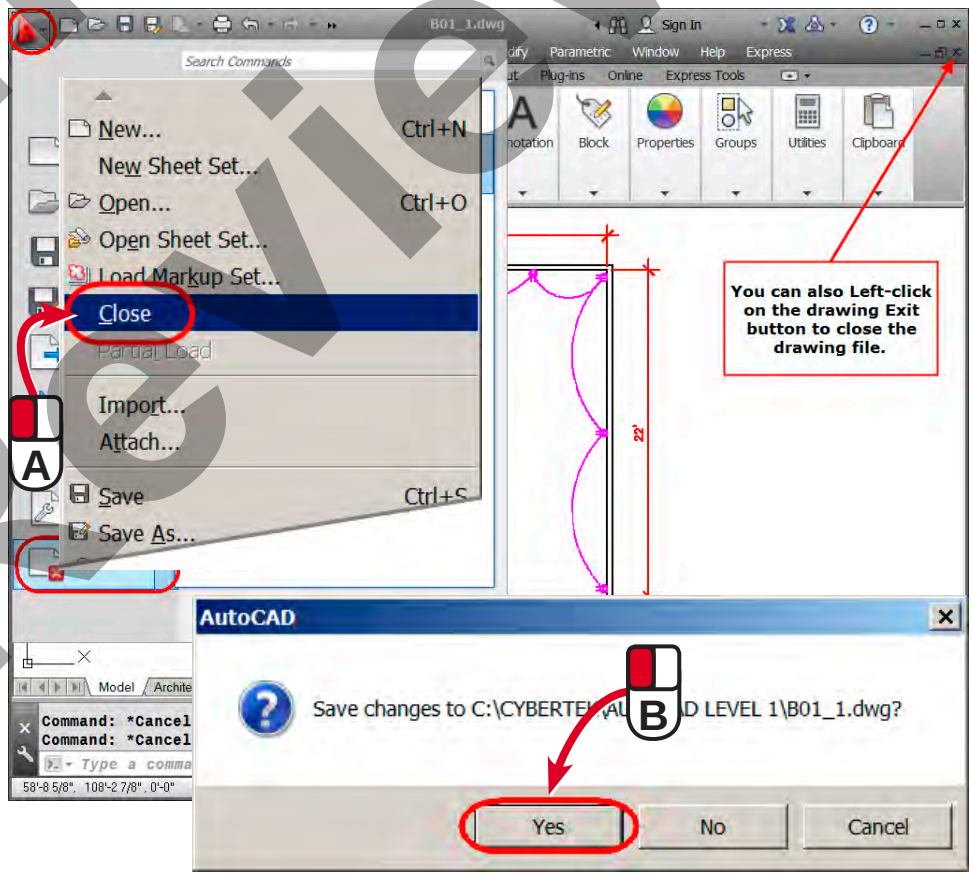


Optional Hands-On

6) **Select the Application Button** at the top left on the title bar, **select the Close option** and then **select the Close Current Drawing (A)**.

7) At the AutoCAD alert dialog box **select the Yes button (B)** to save changes to the drawing file.

Result:
You are closing AutoCAD and saving the open drawing so that it will appear in the Startup menu.

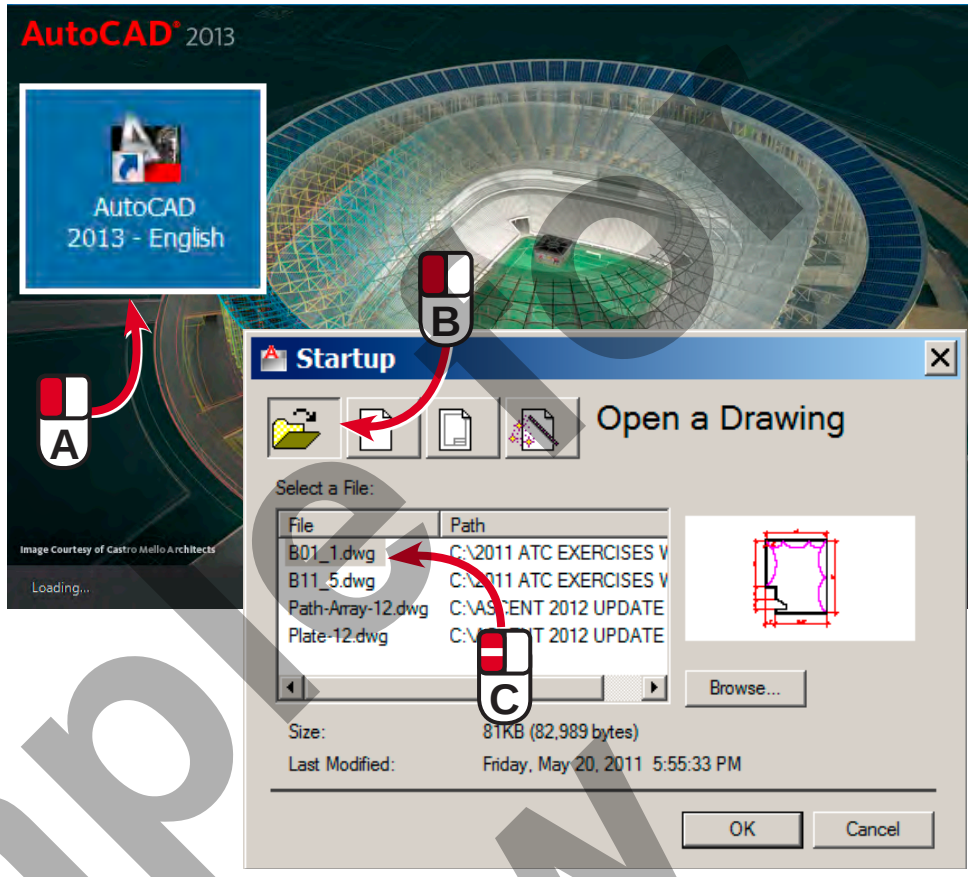


Optional Hands-On

7) **Restart AutoCAD** by **double-clicking on the AutoCAD Icon shortcut** on your desktop **(A)**.

8) At the **Startup** dialog box **select** the **Open** button **(B)**.

9) **Double-click** on the **B01_1.dwg (B)** from the Select a file section **to open** that drawing.

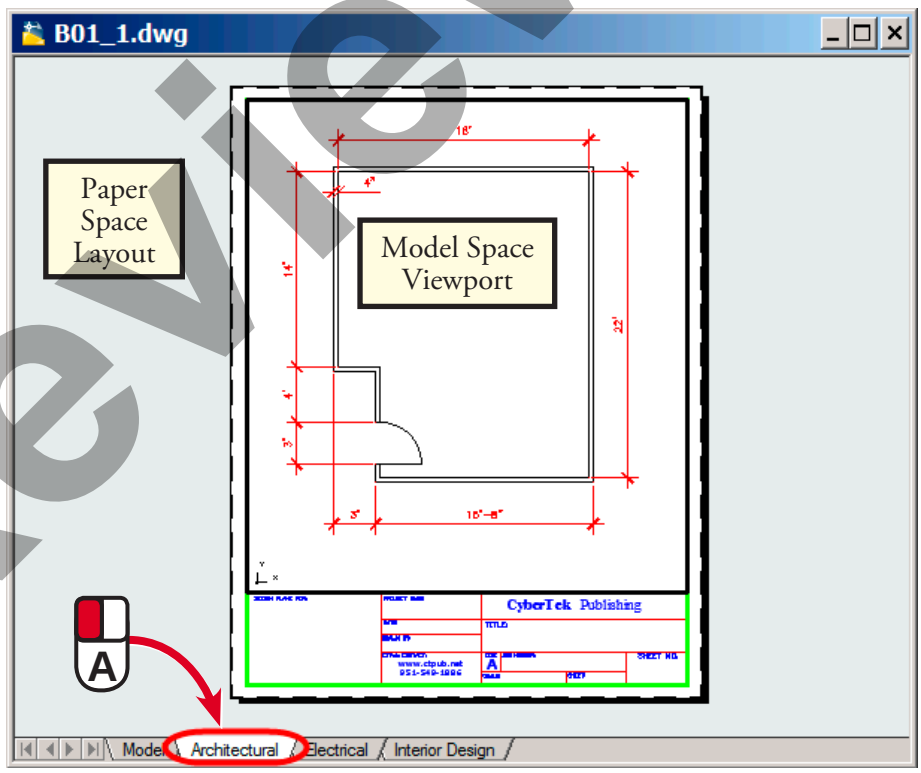


Result:
Using the Startup menu you are able to start AutoCAD and open the drawing you were working on in the last drawing session without going into AutoCAD and then having to use the Open command.

Optional Hands-On

Notice that in the Model space you see the dimensions and electrical lines.

11) **Select** the **Architectural** layout **tab (A)**. Notice that in this layout you only see the dimensions.



Result:
You changed from model space where most of the work is done to a paper space layout which is setup for the plot drawing of the Architectural sheet.

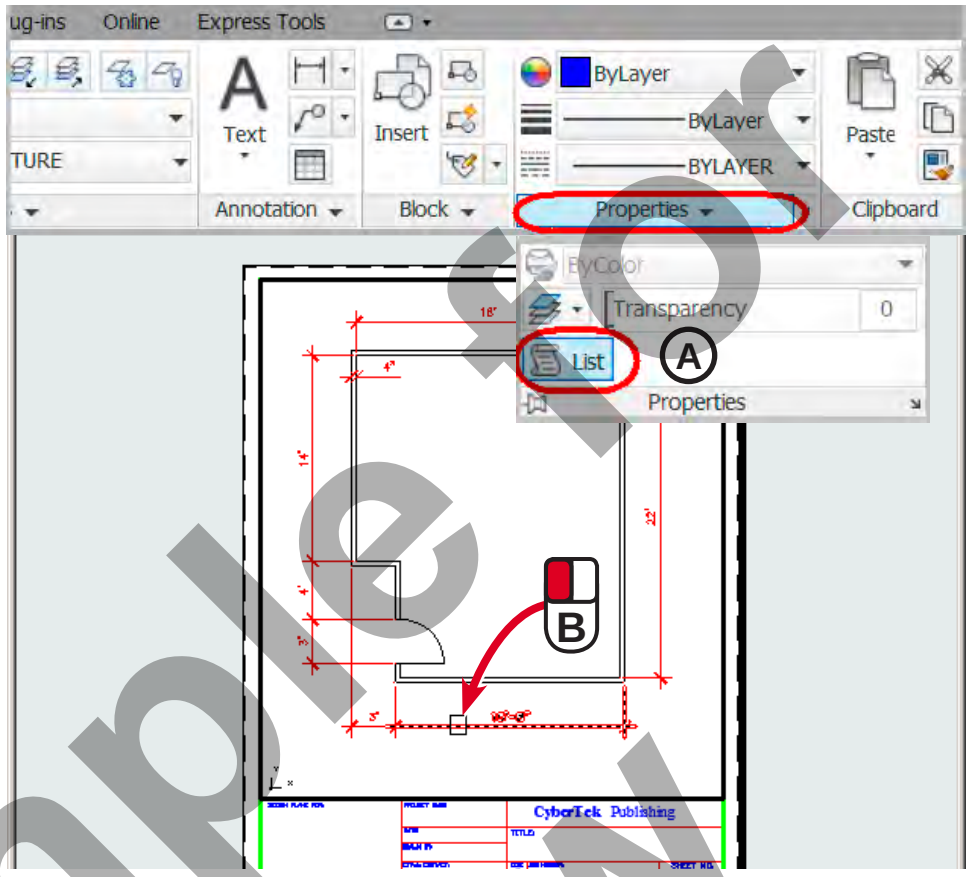
Optional Hands-On

12) **Go to the Home tab> Properties sub panel>** and **select the LIST tool (A).**

13) At the select object prompt **left-click** on the **dimension (B)** as shown.

14) **Press** the **<Enter>** key to change to the Text window to see the database for this object.

Result:
You invoked the List command and selected an object to view the AutoCAD database for that object.

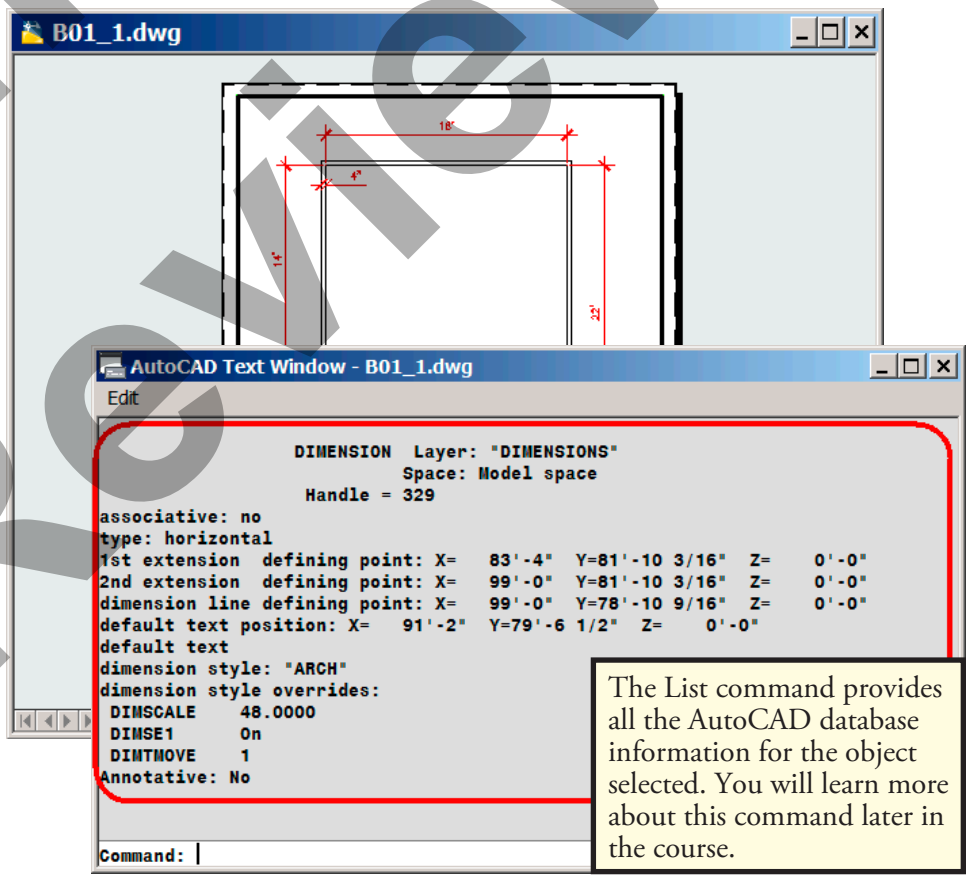


Optional Hands-On

Notice that the list command opened the text window so that you can read the database for the object selected.

15) **Review** the **information** then **when finished press ESC key** then **press the F2 function key** to return to the AutoCAD graphic screen.

Result:
AutoCAD will sometimes change to the Text window to show information. You can always press F2 to see the last 400 lines of the command history.



The List command provides all the AutoCAD database information for the object selected. You will learn more about this command later in the course.

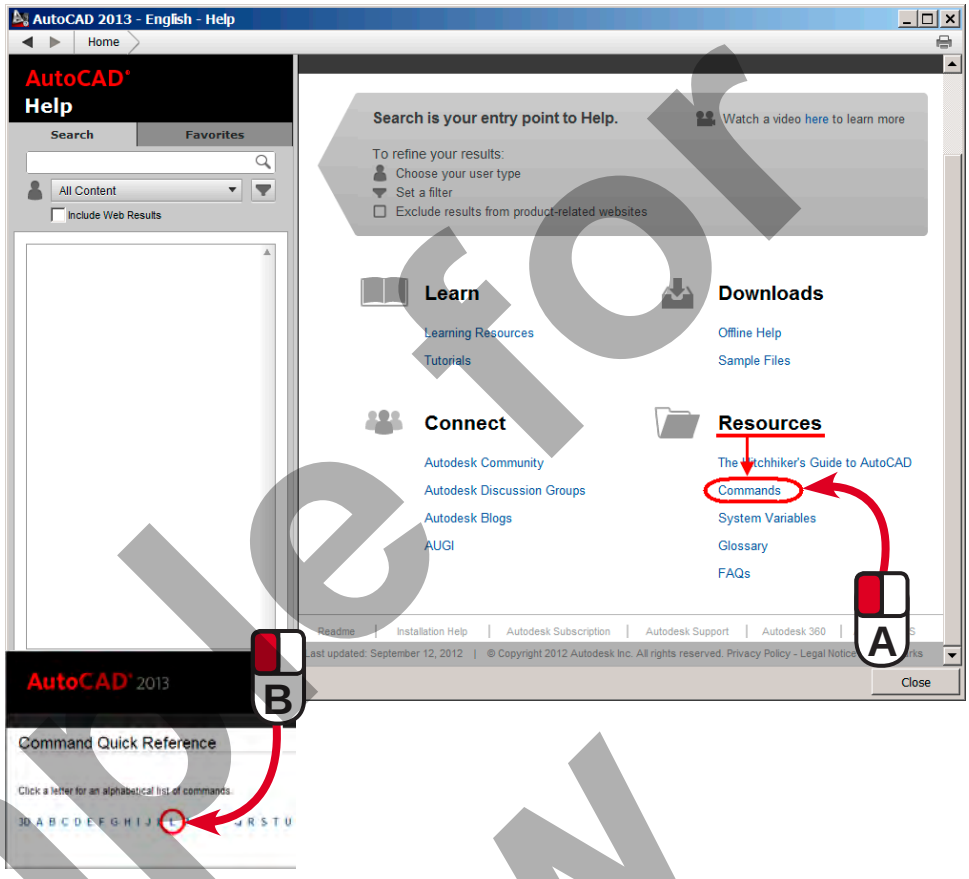
Optional Hands-On

16) **Press** the **F1** function key to start the AutoCAD HELP command.

17) Under the Resources section select the Commands option **(A)**

18) In the next page select the first letter of the command seeking help for **(B)**.

Result:
You are using the AutoCAD Help command to lookup information on how to use commands and view the options to that command.



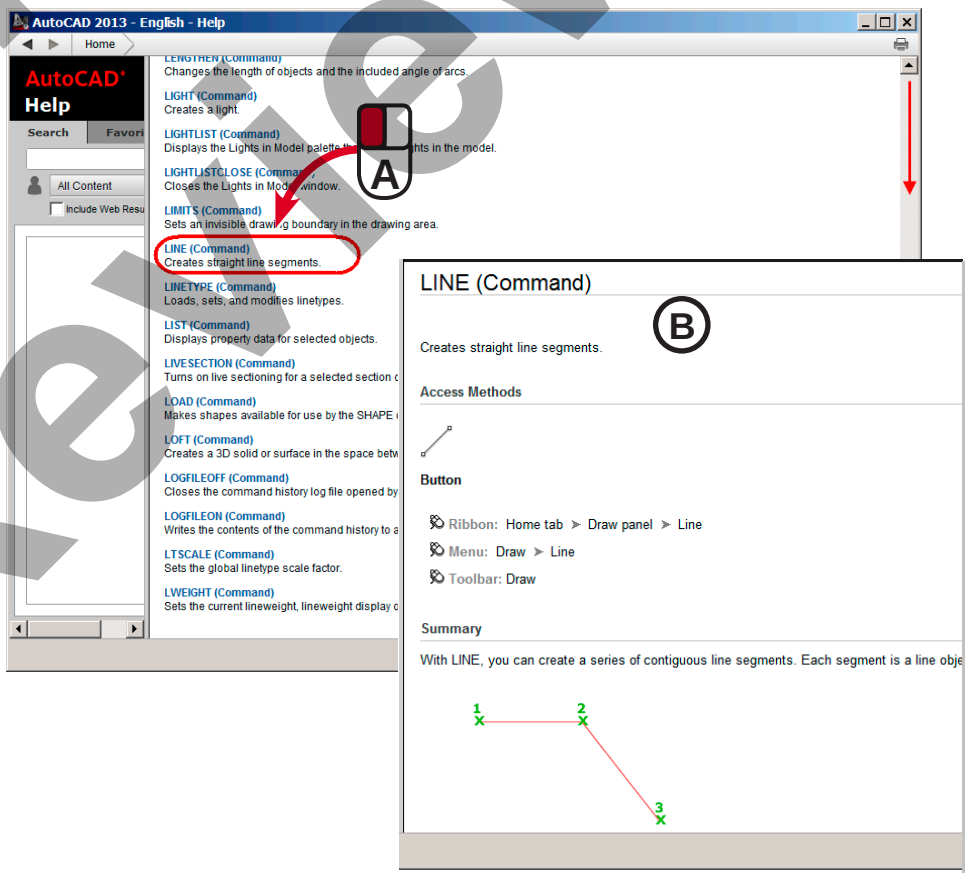
Optional Hands-On

19) In the Command list scroll down and select the LINE command **(A)**.

20) Review the Help command for this command **(B)**.

21) Close the Help command window when finish.

Result:
You are using the AutoCAD Help command to lookup information on the LINE command and view how to use this command.



Optional Hands-On

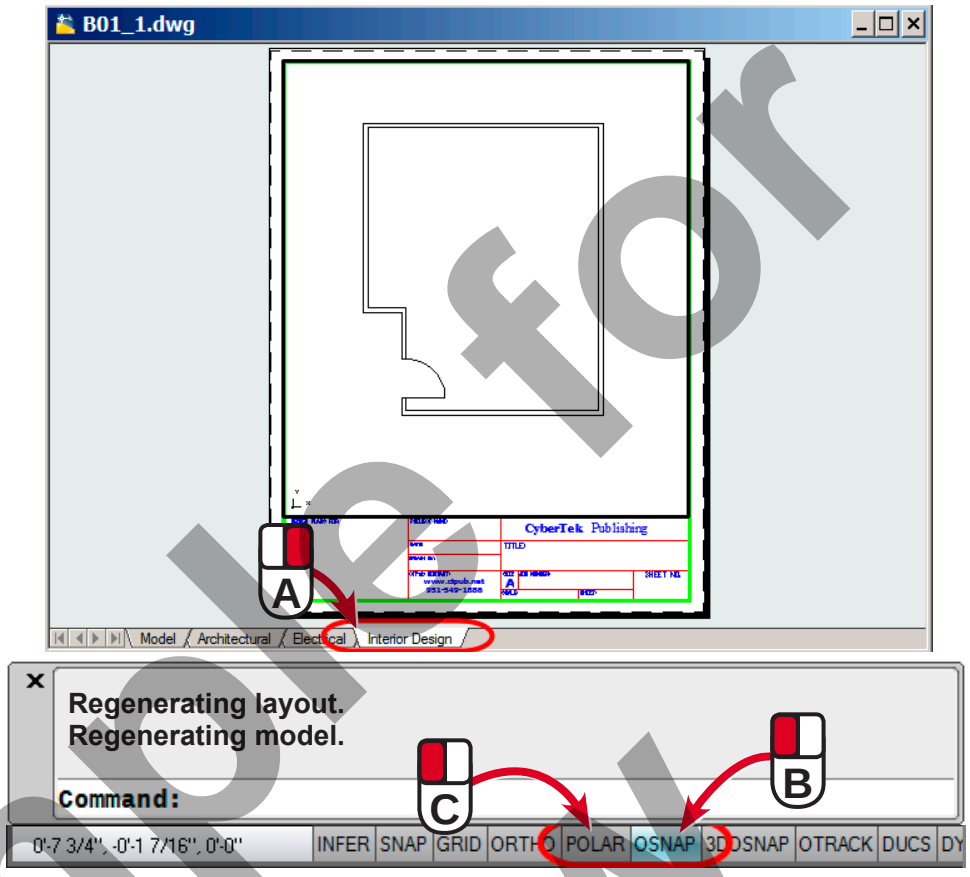
22) **Left-click** on the **Interior Design** layout tab **(A)** to make that layout active.

23) **Left-click** on **OSNAP (B)** on the status bar to **turn it On**.

Note: If the status buttons color is light blue then the button is on, if gray then they are off.

24) **Left-click** on the **POLAR (C)** on the status bar to **turn** it **Off**.

Result:
You have changed to another layout and turned on/off the status bar settings to continue with the next steps in this exercise.



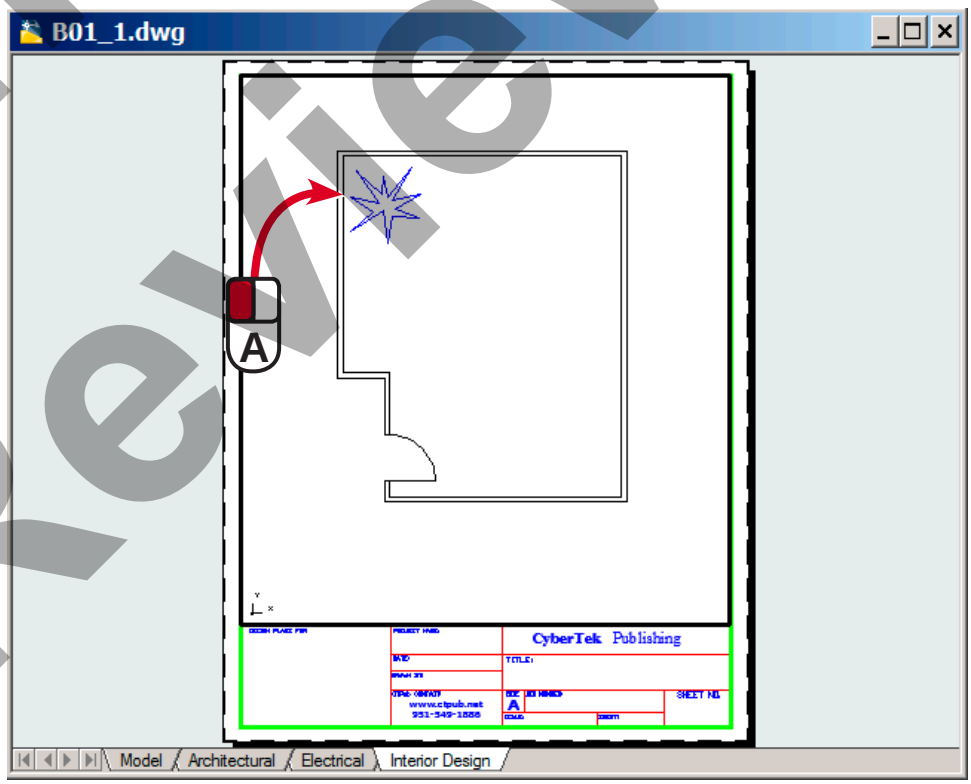
Optional Hands-On

25) **Start** the **Line command** (Draw pull-down menu or the Draw panel on the Home tab for the ribbon).

26) **Left-click** toward the **top left of the room (A)** and continue to draw lines to show the sample plant as shown.

27) **When finished** drawing lines **press <Enter>** to end the line command.

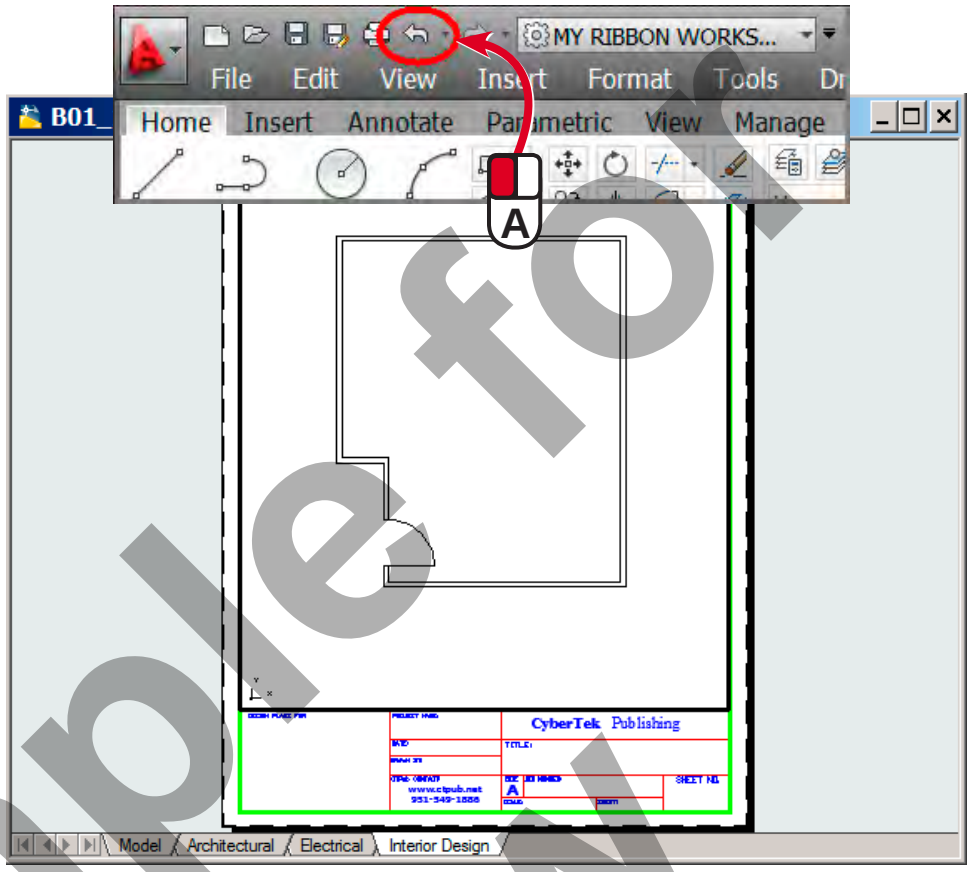
Result:
You used the Line command to sketch a plant in the Interior Design layout inside of the Model Space viewport.



Optional Hands-On

28) **Select** the **Undo** icon tool **(A)** from the Quick Access toolbar, also located on the Standard toolbar.

Note: You can also **Type U <Enter>** at the command prompt.



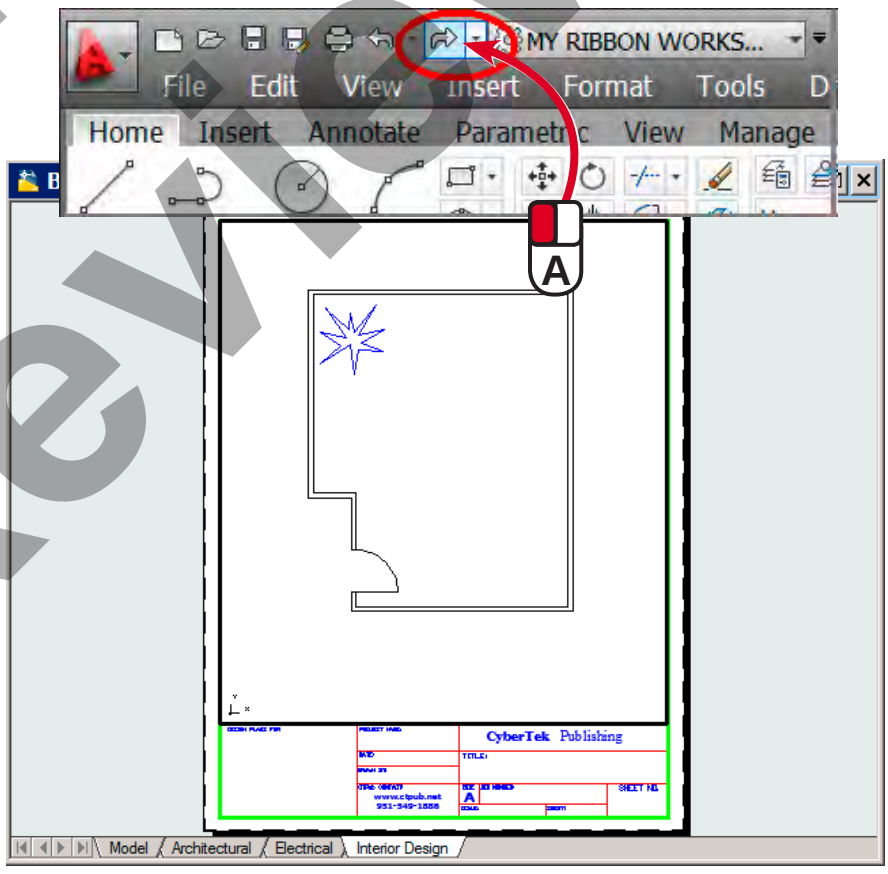
Result:
You used the Undo command to undo the last command which was the Line command that you used to draw the plant.

Optional Hands-On

29) **Select** the **Redo** icon tool **(A)** from the Quick Access toolbar, also located on the Standard toolbar.

Note: You can also **Type REDO <Enter>** at the command prompt.

Remember: To use the Redo command it must be done immediately after the Undo command. If you start a command before Redo you will not be able to use this command.



Result:
You used the REDO command to bring back the last command that was undone.

Optional Hands-On

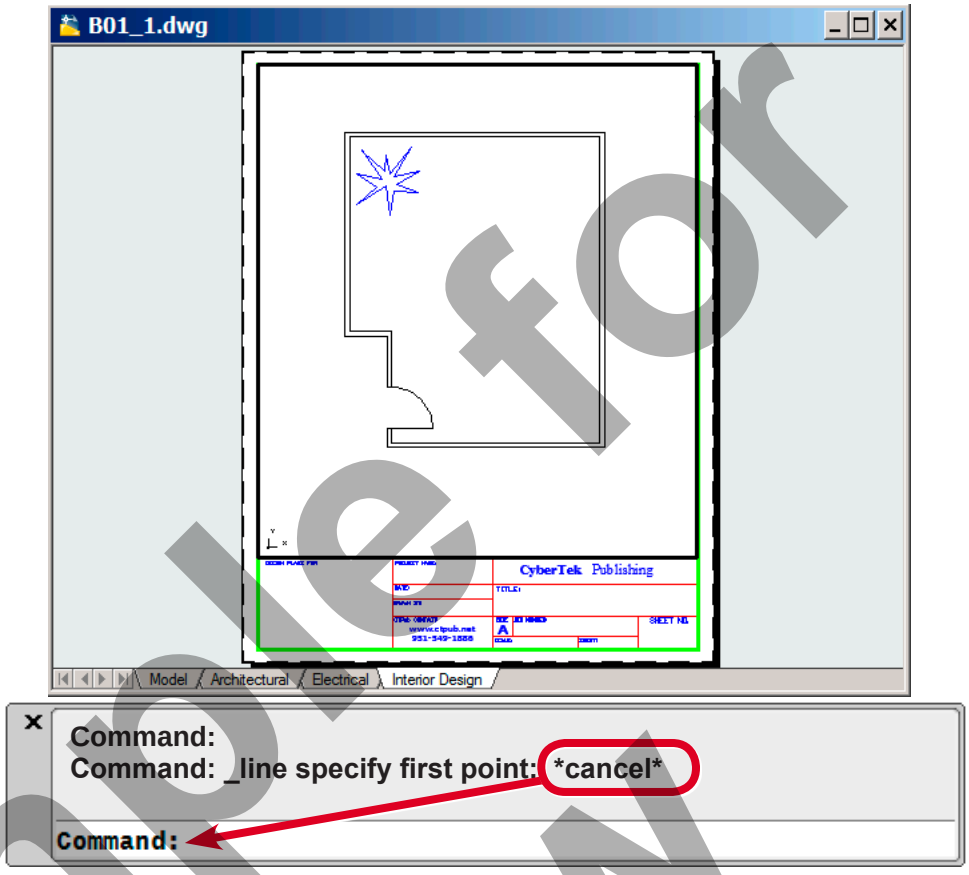
30) **Start** the **LINE** command (Draw pull-down menu or the Draw panel on the Home tab for the ribbon).

31) Then **Press <ESC>** to cancel the Line command to return back to the command prompt.

32) **Select** the **QSave** command from the Quick Access toolbar or the File pull-down menu.

33) Wait for further instructions.

Result:
You started a command then canceled out of it to and used the Qsave command to save changes to the drawing.



Command References

Basic AutoCAD & LT commands

Commands reference in this course is listed in this Appendix by the following information and order:

Command Access Guide:

Command Column: Shows the command name. You could type this name at the Command Line Prompt and then press <Enter> to start the command

Alias Shows the shortcut command name you can type to invoke the command. You can type the command alias at the Command Prompt line and press <Enter> to start that command.

Icons Show the Icon image used for that tool to start the command when using the Ribbon or Toolbars. These Icon images are universal for both with using the Ribbon or Toolbars.

Ribbon Location Shows where the commands are located in the Ribbon Palette. Gives you the Ribbon Tab Name and which Command Panel it is located in.

Toolbar Gives the name of the Toolbar that the command is located in. The Icon image will be the same as the one shown in the Icon column.

Pull-down Menus Shows where you can invoke the AutoCAD commands if you are using the Pull-down menus.

Ribbon Tabs and Command Panels:

This section will show each Ribbon Tabs and all the command Icon tools located in each Command Panels.

AutoCAD Toolbars

List of all the Toolbars that can be used in the commands covered in this book.

Shortcut Commands:

This Section will show all the Function Keys (F-Keys) and the Shortcut Keys (CTRL+2).

Special Keyboard Commands

Function Key Summary

F1	Help
F2	Toggles Text & Graphics Windows
F3	Toggles OSNAP
F5	Toggles Isoplanes
F6	Toggles coordinate readout display
F7	Toggles GRID
F8	Toggles ORTHO
F9	Toggles SNAP
F10	Toggles POLAR
F11	Toggles Snap Tracking

Control Key Summary

Ctrl+0	Toggles display of ALL toolbars
Ctrl+1	Toggles Properties
Ctrl+2	Toggles DesignCenter
Ctrl+3	Toggles Tool Palettes
Ctrl+A	Selects All
Ctrl+C	Copy to clipboard
Ctrl+K	Hyperlink
Ctrl+N	Create new drawing
Ctrl+O	Opens a drawing Plots drawing
Ctrl+P	Plots drawing
Ctrl+Q	Closes AutoCAD
Ctrl+S	Saves Drawing / Ctrl+Shift+S Save as new drawing
Ctrl+X	Cuts to clipboard / Ctrll+V Pastes from clipboard
Ctrl+Y	Redo a command that was undone
Ctrl+Z	Undo a command

Command	Alias	Icon	Ribbon Location	Toolbar	Pull-down Menu
Adcenter	ADC		Home Tab > Draw Panel > Line	Draw	Draw > Liner
Arc	A		Home Tab > Draw Panel > Arc Flyout	Draw	Draw > Arc > [option]
Array	AR		Home Tab > Modify Panel > Array	Modify	Modify > Array
Attdef	ATT		Insert Tab > Attributes Panel > Defining Attributes		Draw > Block > Define Attributes
Attedit	ATE		Insert Tab > Attributes Panel > Edit Attributes	Modify II	Modify > Object > Attribute > Single (in LT only)
Bhatch	H or BH		Home Tab > Draw Panel > Hatch	Draw	Draw > Hatch
Block	B		Home Tab > Block Panel > Create	Draw	Draw > Block > Make
Chamfer	CHA		Home Tab > Modify Panel > Fillet Flyout Tool > Chamfer	Modify	Modify > Chamfer
Checkstandards			Manage Tab > CAD Standards Panel > Check	CAD Standards	Tools > CAD Standards > Check
Circle	C		Home Tab > Draw Panel > Circle Flyout	Draw	Draw > Circle > [option]
Copy	CO		Home Tab > Modify Panel > Copy	Modify	Modify > Copy
Ddedit	ED		Modify > Object > Text > Edit	Text	

Command	Alias	Icon	Ribbon Location	Toolbar	Pull-down Menu
DdPtype			Home tab > Utilities panel > Point Style		Format > Point Style
Dimaligned	DAL		Annotate tab > Dimensions panel > Aligned	Dimension	Dimension > Aligned
Dimangular	DAN		Annotate tab > Dimensions panel > Angular	Dimension	Dimension > Angular
Dimbaseline	DBA		Annotate tab > Dimensions panel >Baseline	Dimension	Dimension > Baseline
Dimcenter	DCE		Annotate tab > Dimensions panel > Center Mark	Dimension	Dimension > Center Mark
Dimcontinue	DCO		Annotate tab > Dimensions panel > Continue	Dimension	Dimension > Continue
Dimdiameter	DDI		Annotate tab > Dimensions panel > Diameter	Dimension	Dimension > Diameter
Dimlinear	DLI		Annotate tab > Dimensions panel > Linear	Dimension	Dimension > Linear
Dimordinate	DOR		Annotate tab > Dimensions panel > Ordinate	Dimension	Dimension > Ordinate
Dimradius	DRA		Annotate tab > Dimensions panel > Radius	Dimension	Dimension > Radius
Dimreassociate	DRE		Annotate tab > Dimensions panel > Reassociate	Dimension	Dimension > Reassociate Dimensions
Dimstyle	DST		Annotate tab > Dimensions panel > Dimension Style	Dimension	Dimension > Style

Command	Alias	Icon	Ribbon Location	Toolbar	Pulldown Menu
Dist	DI			Inquiry	Tools > Inquiry > Distance
Divide	DIV		Home tab > Draw panel > Divide		Draw > Point > Divide
Donut	DO		Home tab > Draw panel > Donut		Draw > Donut
Draworder	DR		Home tab > Modify panel > Bring to Front	Modify II	Tools > Display Order > [option]
Dtext or Text	DT		Home tab > Annotation panel > Single Line Text	Text	Draw > Text > Single Line Text
Eattedit			Home tab > Block panel > Edit Single Attribute	Modify II	Modify > Object > Attribute > Single (not in LT)
Ellipse	EL		Home tab > Draw panel > Center	Draw	Draw > Ellipse > [option]
Erase	E		Home tab > Modify panel > Erase	Modify	Modify > Erase
Explode	X		Home tab > Modify panel > Explode	Modify	Modify > Explode
Extend	EX		Home tab > Modify panel > Extend	Modify	Modify > Extend
Fillet	F		Home tab > Modify panel > Fillet	Modify	Modify > Fillet
Find			Annotate tab > Text panel > Find Text	Text	Edit > Find

Command	Alias	Icon	Ribbon Location	Toolbar	Pulldown Menu
Hatchedit	HE		Home tab > Modify panel > Edit Hatch	Modify II	Modify > Object > Hatch
Id			Menu: Tools > Inquiry > ID Point	Insert	Tools > Inquiry > ID Point
Insert	I		Insert tab > Block panel > Insert	Insert	Insert > Block
Justifytext			Annotate tab > Text panel > Justify	Text	Modify > Object > Text > Justify
Layer	LA		Home tab > Layers panel > Layer Properties Manager	Layers	Format > Layer
Laytrans			Tools tab > Standards panel > Layer Translator	CAD Standards	Tools > CAD Standards > Layer Translator
Limits					Format > Drawing Limits
Line	L		Home tab > Draw panel > Line	Draw	Draw > Line
Linetype	LT		Home tab > Properties panel > Linetype		Format > Linetype
Lweight	LW		Home tab > Properties panel > Lineweight		Format > Lineweight
Matchprop	MA		Home tab > Properties panel > Match Properties	Standard	Modify > Match Properties
Measure	ME		Home tab > Draw panel > Measure		Draw > Point > Measure

Command	Alias	Icon	Ribbon Location	Toolbar	Pull-down Menu
Mirror	MI		Home tab > Modify panel > Mirror	Modify	Modify > Mirror
Move	M		Home tab > Modify panel > Move	Modify	Modify > Move
Mtext	MT or T		Home tab > Annotation panel > Multiline Text	Text	Draw > Text > Multiline Text
New					File > New
Offset	O		Home tab > Modify panel > Offset	Modify	Modify > Offset
Oops					
Open				Standard	File > Open
Options	OP				Tools > Options
Pagesetup			Output tab > Plot panel > Page Setup		File > Page Setup
Pan	P		View tab > Navigate panel > Pan	Standard	View > Pan > Realtime
Pedit	PE		Home tab > Modify panel > Edit Polyline	Modify II	Modify > Object > Polyline
Pline	PL		Home tab > Draw panel > Polyline	Draw	Draw > Polyline

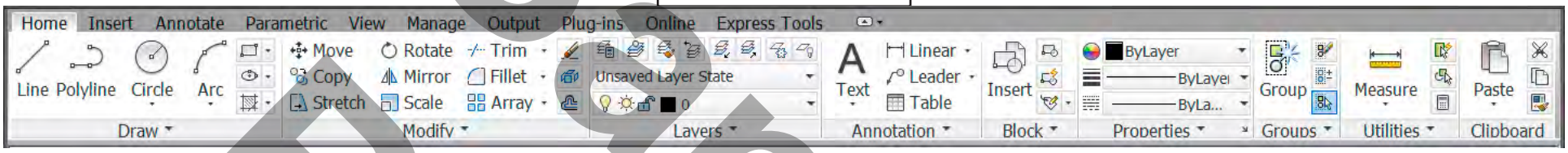
Command	Alias	Icon	Ribbon Location	Toolbar	Pull-down Menu
Plot			Output tab > Plot panel > Plot	Standard	File > Plot
Plottermanager			Output tab > Plot panel > Manage Plotters		File > Plotter Manager
Point	PO		Home tab > Draw panel > Multiple Points	Draw	Draw > Point > Single Point
Polygon	POL		Home tab > Draw panel > Polygon	Draw	Draw > Polygon
Preview	PRE		Output tab > Plot panel > Preview	Standard	File > Plot Preview
Properties	PROPS		View tab > Palettes panel > Properties	Standard	Tools > Properties
Qleader	LE			Dimension	Dimension > Leader
Qnew				Standard	
Rectang	REC		Home tab > Draw panel > Rectangle	Draw	Draw > Rectangle
Rotate	RO		Home tab > Modify panel > Rotate	Modify	Modify > Rotate
Save				Standards	File > Save
Saveas					File > Save As

Command	Alias	Icon	Ribbon Location	Toolbar	Pull-down Menu
Scale	SC		Home tab > Modify panel > Scale	Modify	Modify > Scale
Scaletext			Annotate tab > Text panel > Scale	Text	Modify > Object > Text > Scale
SheetSet			View tab > Palettes panel > Sheet Set Manager	Standards	Tools > Sheet Set Manager
Spell	SP		Annotate tab > Text panel > Check Spelling		Tools > Spelling
Spline	SPL		Home tab > Draw panel > Spline	Draw	Draw > Spline
Standards			Tools tab > Standards panel > Configure	CAD Standard	Tools > CAD Standards > Configure
Stretch	S		Home tab > Modify panel > Stretch	Modify	Modify > Stretch
Style	ST		Home tab > Annotation panel > Text Style	Text	Format > Text Style
Stylesmanager					File > Plot Style Manager
Table	TB		Home tab > Annotation panel > Insert Table	Draw	Draw > Table
Tablestyle			Annotate tab > Tables > Table Style	Standard	Format > Table Style
Text or Dtext	DT		Home tab > Annotation panel > Single Line Text	Text	Draw > Text > Single Line Text

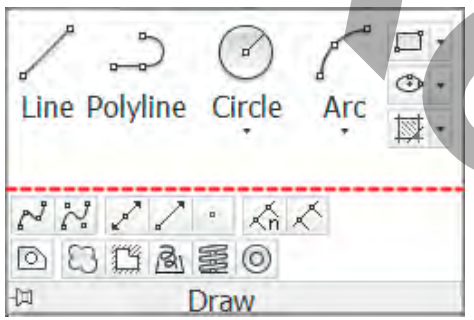
Command	Alias	Icon	Ribbon Location	Toolbar	Pull-down Menu
Toolpalettes			View tab > Palettes panel > Tool Palettes	Standard	Tools > Tool Palettes Window
Trim	TR		Home tab > Modify panel > Trim	Modify	Modify > Trim
Units	UN				Format > Units
Vports			View tab > Viewports panel > Named Viewports	Layouts	View > Viewports > [option]
Xref	XR			Reference	Insert > Xref Manager
Zoom Extents				Zoom/Standard	View > Zoom > Extents
Zoom Object				Zoom/Standard	View > Zoom > Object
Zoom Previous				Standard	View > Zoom > Previous
Zoom Realtime			View tab > Navigate panel > Realtime	Zoom/Standard	View > Zoom > Realtime
Zoom Scale				Zoom/Standard	View > Zoom > Scale
Zoom Window				Zoom/Standard	View > Zoom > Window

Ribbon Tabs and Command Panels

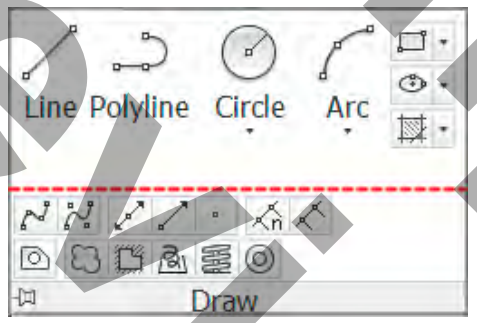
HOME TAB



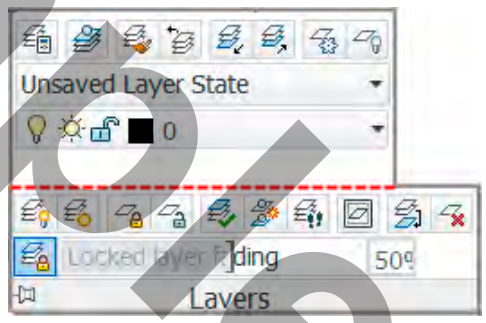
DRAW PANEL



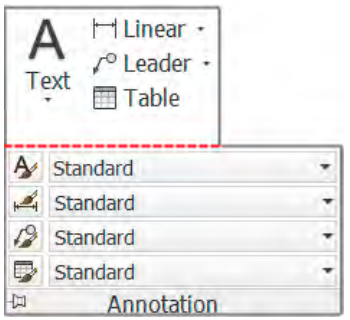
MODIFY PANEL



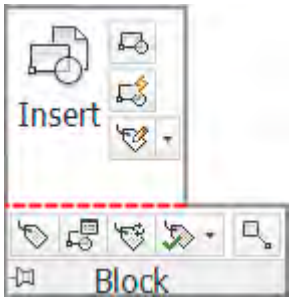
LAYERS PANEL



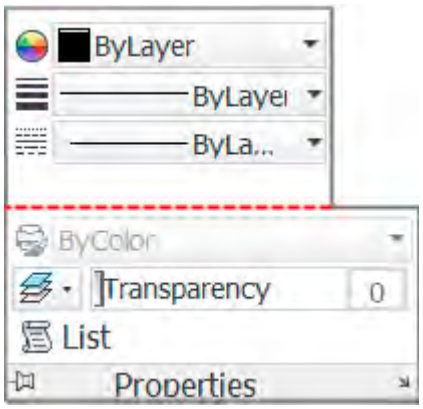
ANNOTATION PANEL



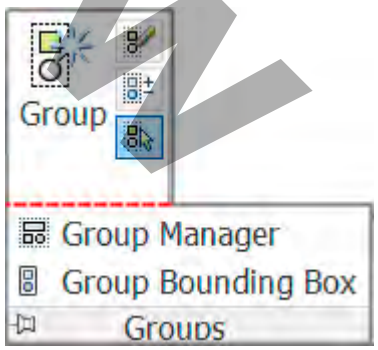
BLOCK PANEL



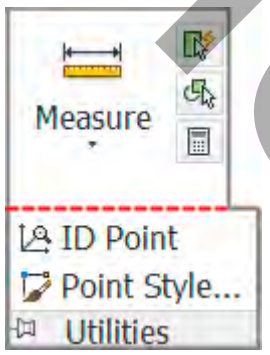
PROPERTIES PANEL



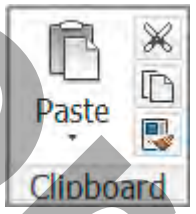
UTILITIES PANEL



GROUP PANEL

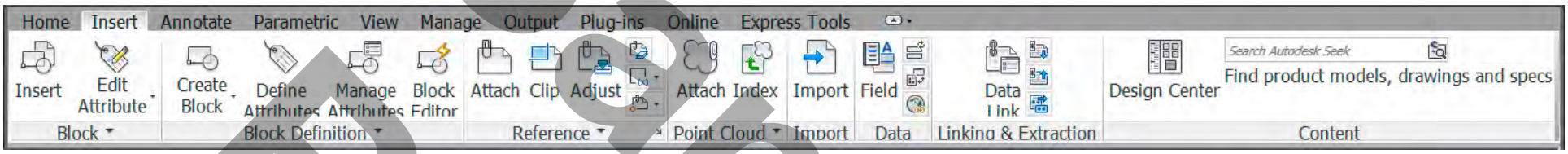


CHIPBOARD PANEL

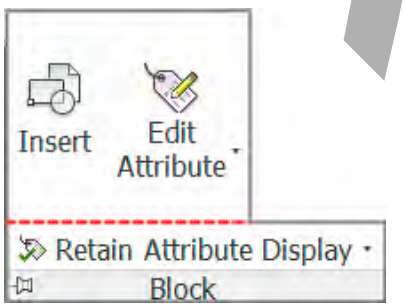


Ribbon Tabs and Command Panels

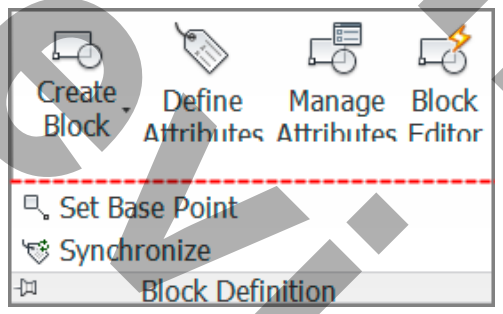
INSERT TAB



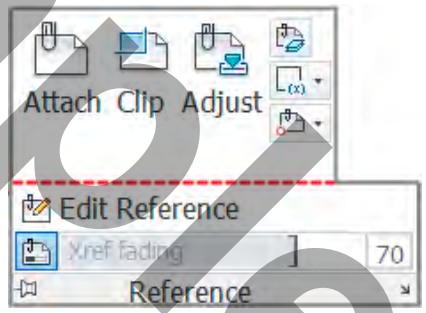
BLOCK PANEL



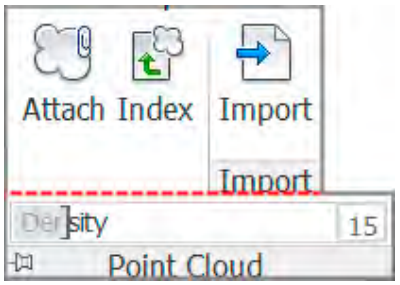
BLOCK DEFINITION PANEL



REFERENCE PANEL



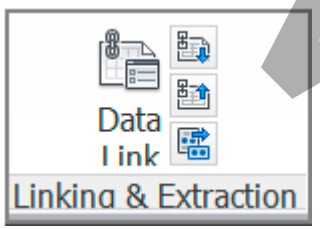
POINT CLOUD PANEL



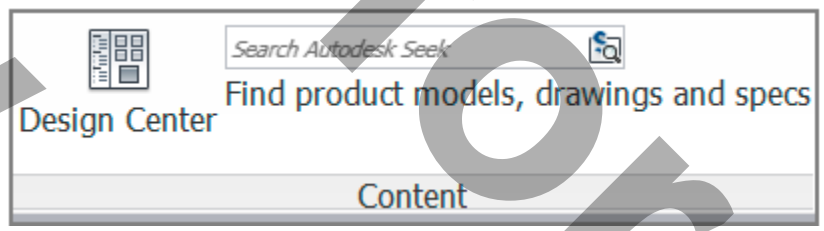
IMPORT PANEL

DATA PANEL

LINKING & EXTRACTION PANEL

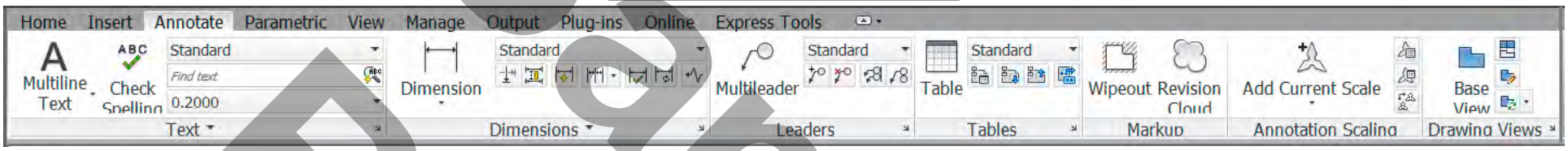


CONTENT PANEL

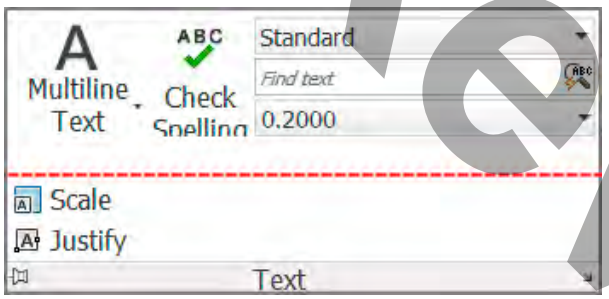


Ribbon Tabs and Command Panels

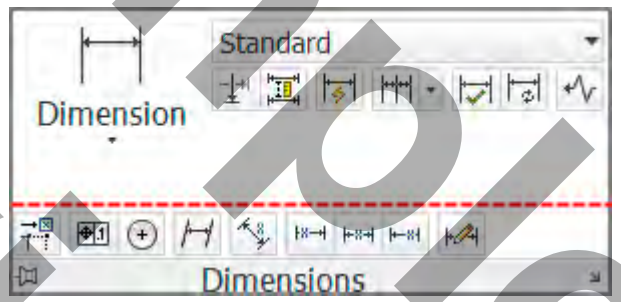
ANNOTATE TAB



TEXT PANEL

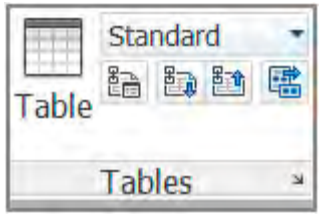


DIMENSIONS PANEL

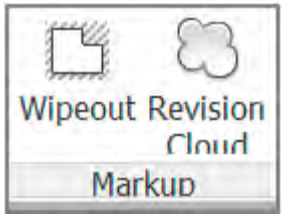


LEADERS PANEL

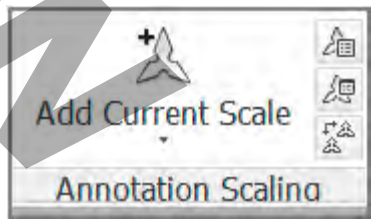
TABLES PANEL



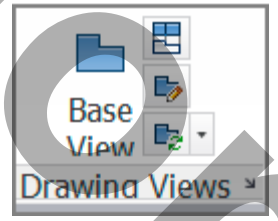
MARKUP PANEL



ANNOTATION SCALING PANEL

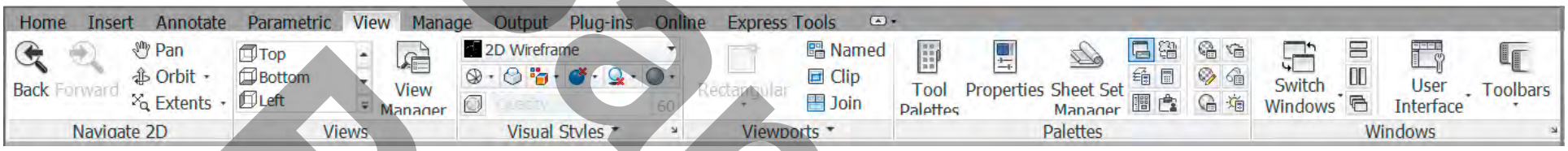


DRAWING VIEWS SCALING PANEL



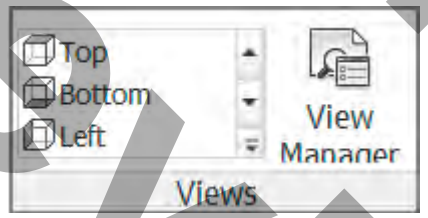
Ribbon Tabs and Command Panels

VIEW TAB

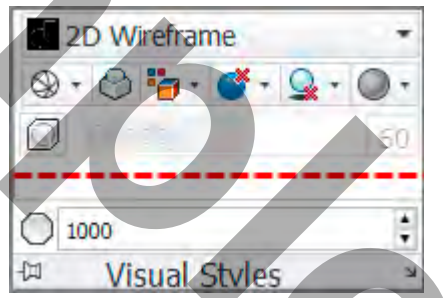


NAVIGATE 2D PANEL

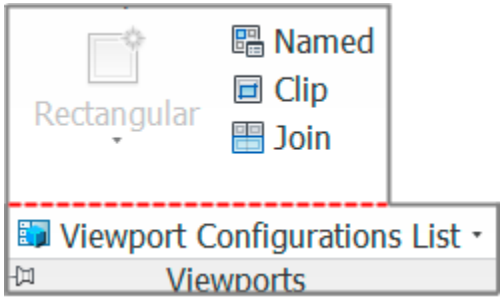
VIEW PANEL



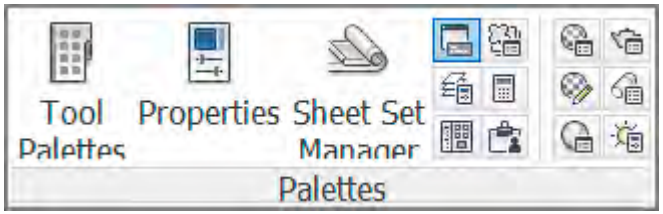
VISUAL STYLES PANEL



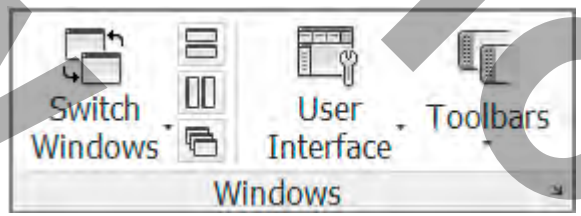
VIEWPORTS PANEL



PALETTES PANEL

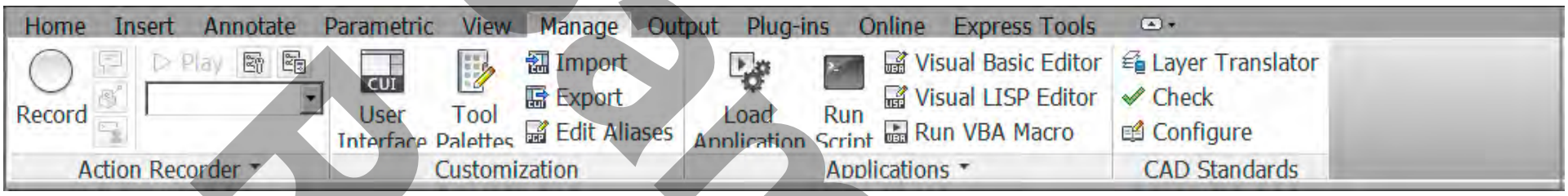


WINDOWS PANEL

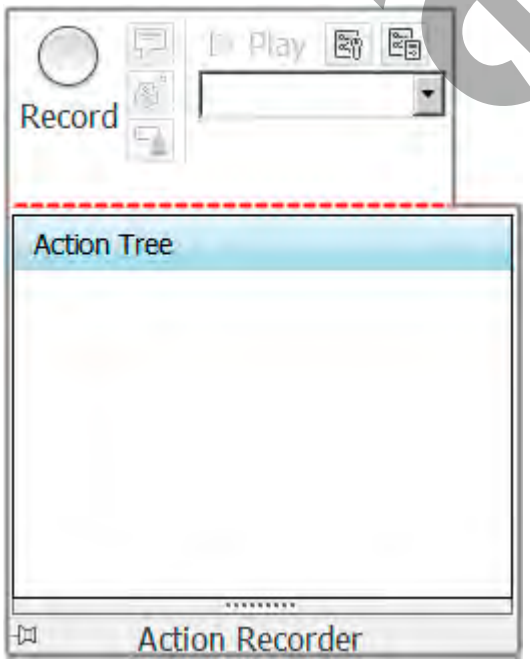


Ribbon Tabs and Command Panels

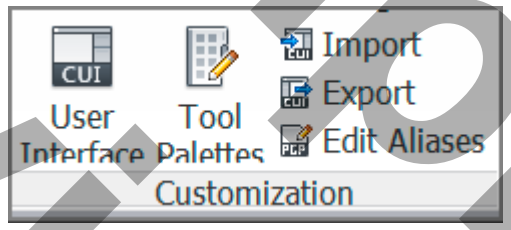
MANAGE TAB



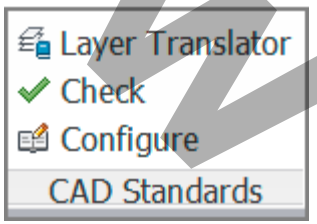
ACTION RECORDER PANEL



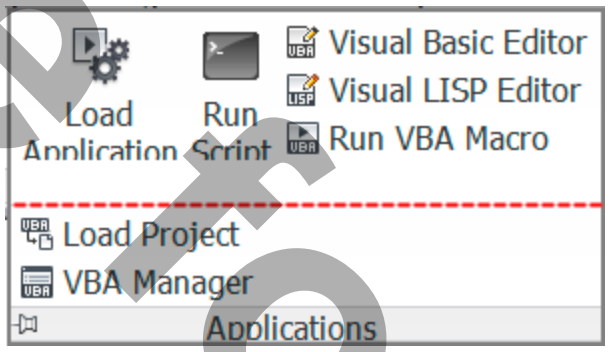
CUSTOMIZATION PANEL



PALETTES PANEL

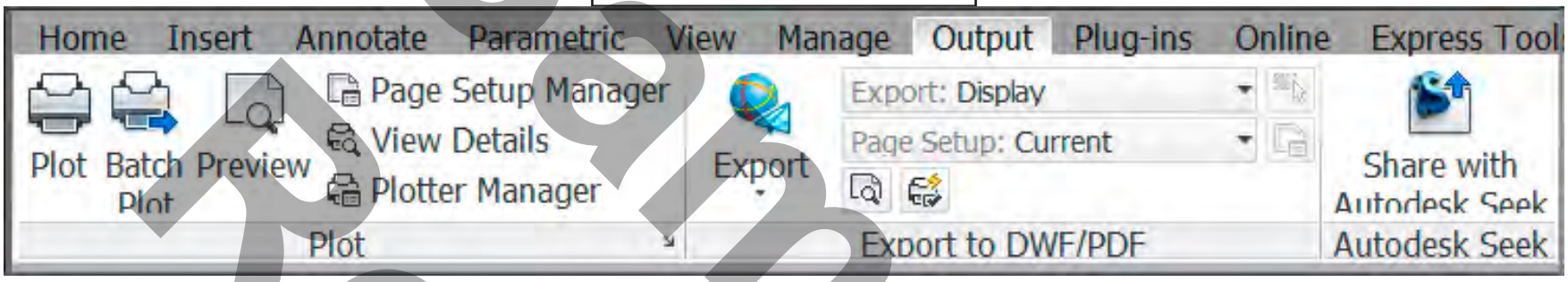


APPLICATIONS PANEL

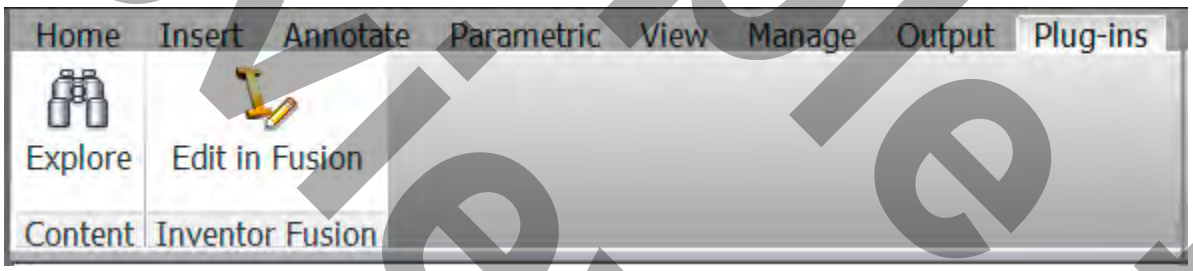


Ribbon Tabs and Command Panels

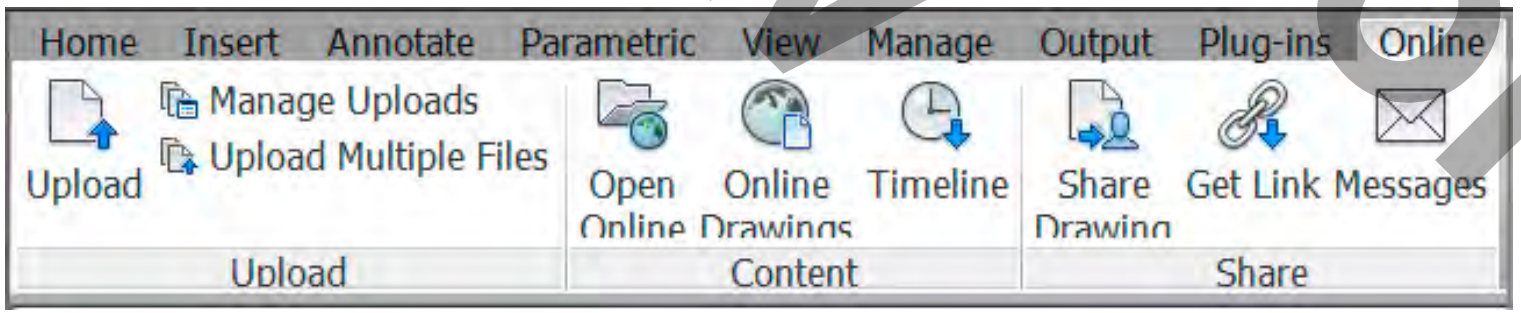
OUTPUT TAB



PLUGINS TAB



ONLINE TAB



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