

## **LEARNING OBJECTIVES**

*After completing this lesson, you will be able to:*

1. Create and use a Template
2. Select a Command
3. Draw, Select and Erase objects
4. Start a New drawing
5. Open an Existing Drawing
6. Save, Backup and Recover a drawing
7. Exit AutoCAD

# **LESSON 2**

# CREATE A TEMPLATE

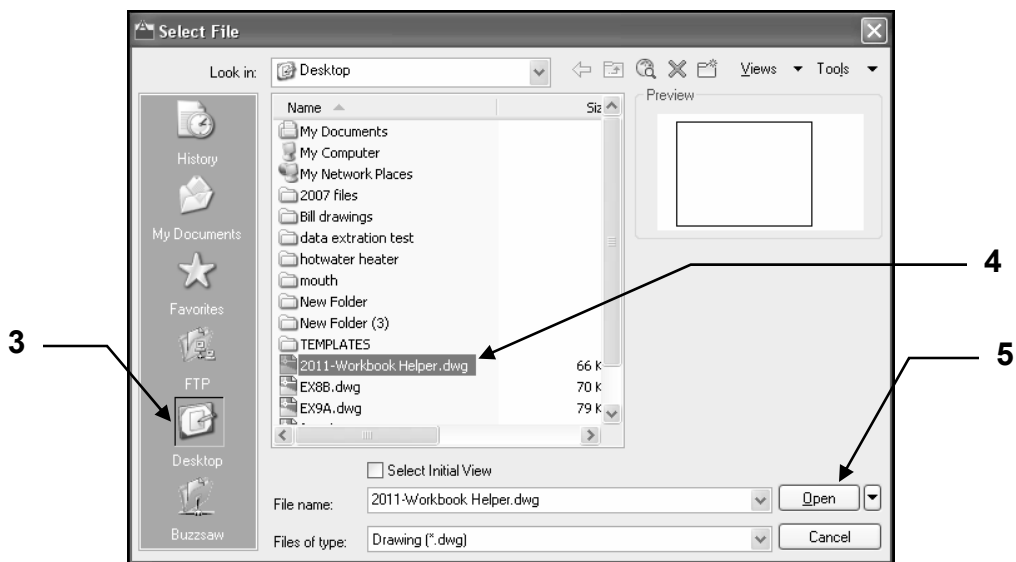
The first item on the learning agenda is **how to create a template file** from a drawing file. **This is important:** You will need this template to complete Lessons 2 through 8.

## First you need to download a few files.

- A. Go to the website: [www.shrockpublishing.com](http://www.shrockpublishing.com)
- B. Select “**Downloadable Files**” from the header. (Top of the website)
- C. Save them to your “**Desktop**”.

## Now you will create a template. (This will be a very easy task.)

1. Start AutoCAD, if you haven't already. (Refer to page 1-2)
2. Select the **OPEN** tool from the **Quick Access Toolbar**. (Refer to page 1-11)



3. Select the **Desktop** directory
4. Select **2011-Workbook Helper.dwg**.
5. Select **OPEN** button located in the lower right corner.

Notice the 3 letter extension for a drawing file is .dwg

Continued on the next page...

# CREATE A TEMPLATE....continued

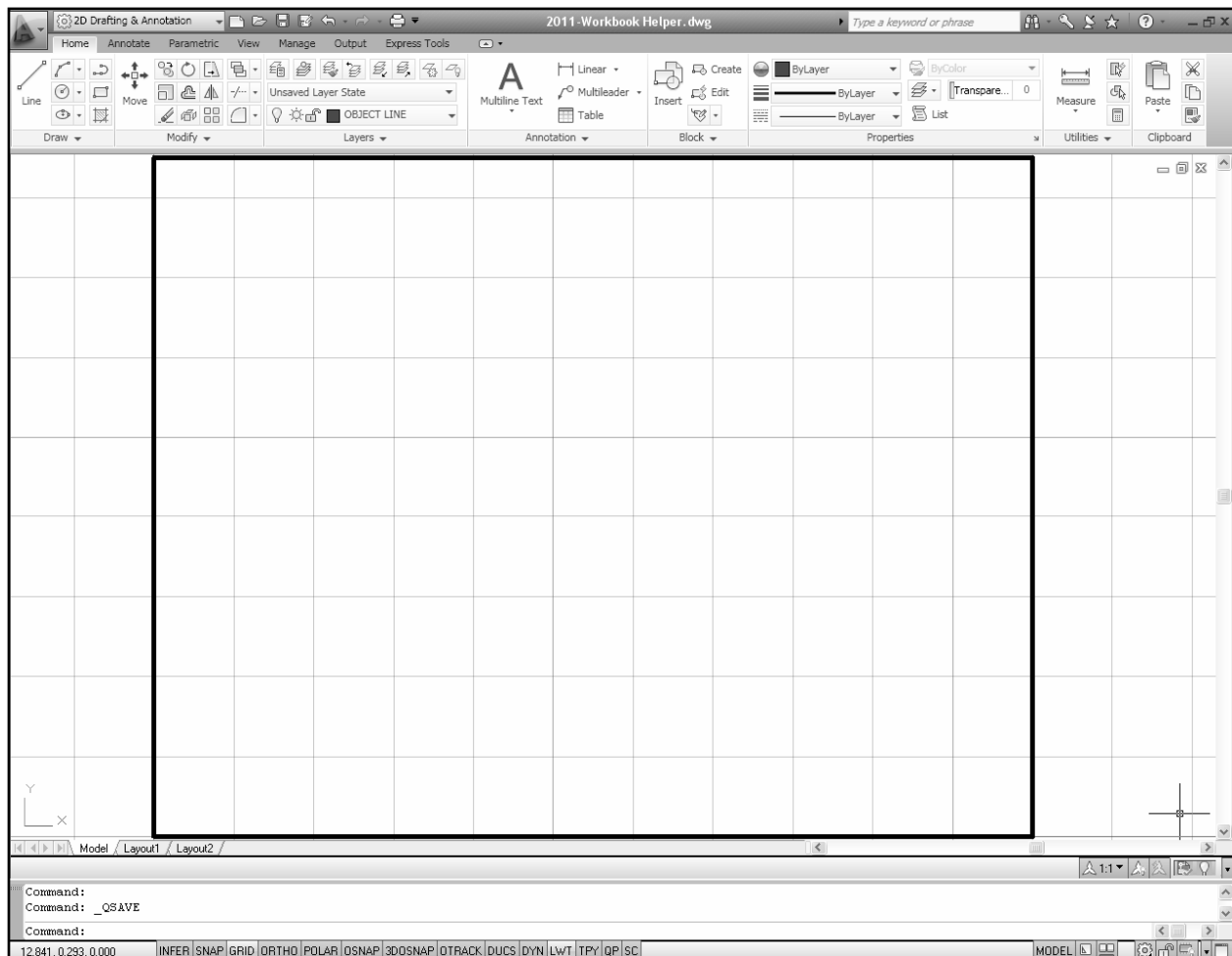
Your screen should appear as shown below.

The **Rectangular shape** I placed in the drawing. I have designed the exercises to fit on an 11 X 8.5 sheet of paper so you can easily print them on any letter size printer. The Rectangle represents an 11 X 8.5 sheet of paper. While completing the exercises within this workbook please try to stay within this rectangle.

The criss-cross lines are **Grids**. I have set them to display every 1 inch vertically and horizontally. You will learn more about Grids in Lesson 3. For now notice that the grids are 11 horizontally and 8.5 vertically. Grids are merely a visual aid and will not print. The size may be changed at any time and they may be turned ON or OFF easily by selecting the "Grid" button on the status line. (Refer to page 1-13)

Notice the **drawing file name** is displayed at the top of the screen.

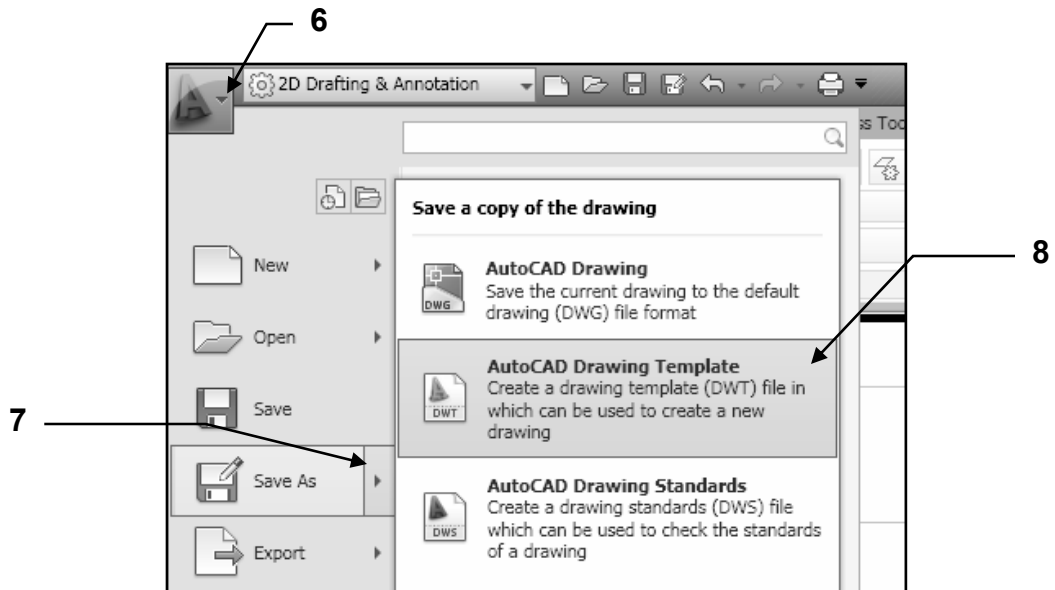
The next step is to create a template from this drawing.  
Continue on to step 6 on the next page.



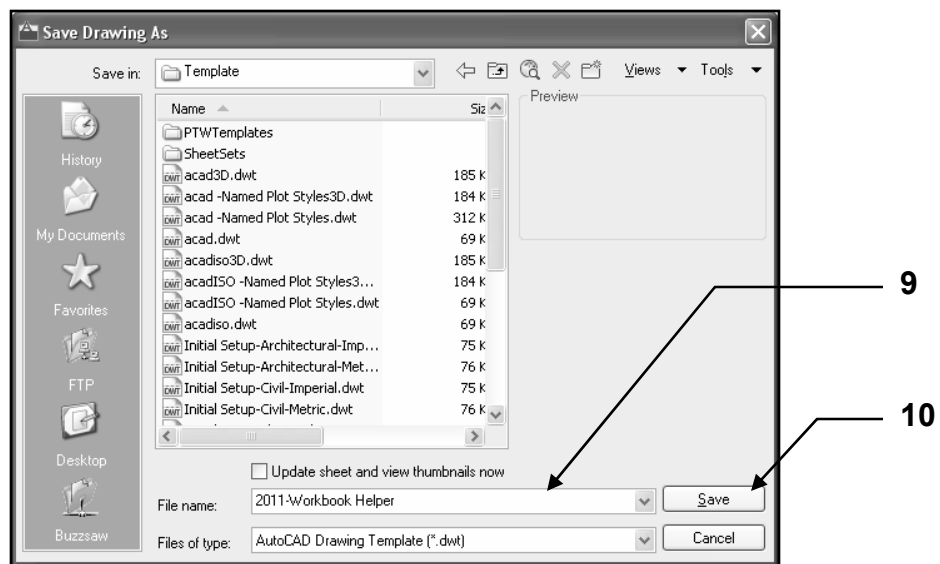
Continued on the next page...

# CREATE A TEMPLATE....continued

6. Select the “Application Menu” ▼
7. Select “Save As” ▶
8. Select “AutoCAD Drawing Template”.



9. Type the new file name **2011-Workbook Helper** in the **File Name** box. Do not type the extension .dwt, AutoCAD will add it automatically.



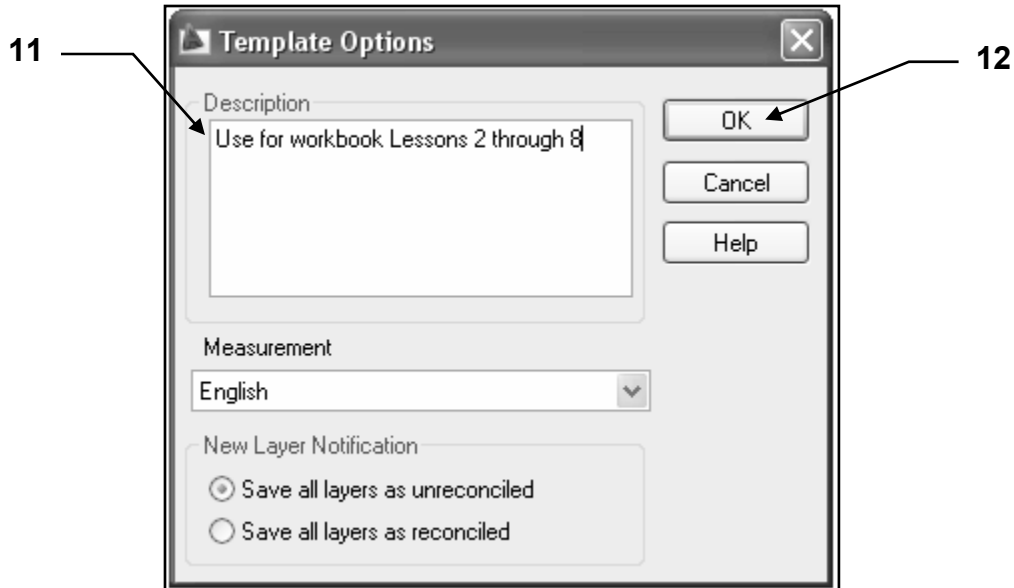
10. Select the **Save** button.

Continued on the next page...

# CREATE A TEMPLATE....continued

11. Type the description as shown below.

12. Select **OK** button.



Now you have a template to use for Lessons 2 through 8.

At the beginning of each exercise you will be instructed to start a NEW drawing using the **2011-Workbook Helper.dwt**. (More on using the template on the next page)

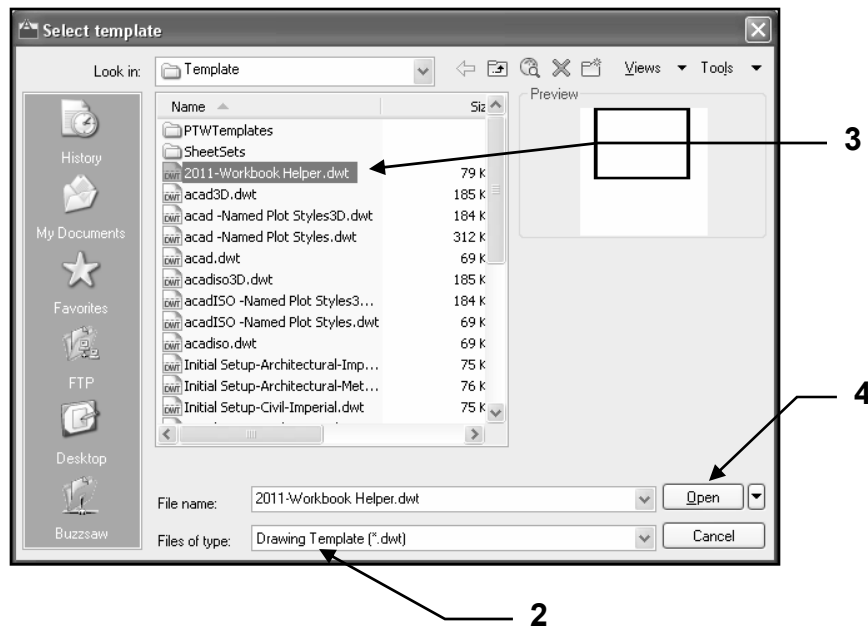
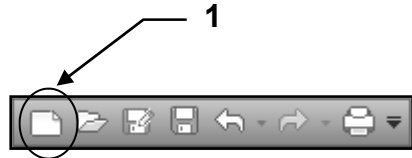
Using a template as a master setup drawing is very good CAD management.

# USING A TEMPLATE

The template that you created from the previous pages will be used for lessons 2 through 8. Many variables have been preset in this template. This will allow you to start drawing immediately. You will learn how to set those variables before you complete this workbook, but for now you will concentrate on learning the AutoCAD commands and hopefully have some fun.

## TO USE A TEMPLATE

1. Select the **NEW** tool from the **Quick Access Toolbar**.



2. Select **Drawing Template [\*.dwt]** from the “Files of type:” list.
3. Select the **2011-Workbook Helper.dwt** from the list of templates.

**Note:** If you do not have this template, refer to page 2-2 for instructions.

4. Select the **Open** button.

### **Note:**

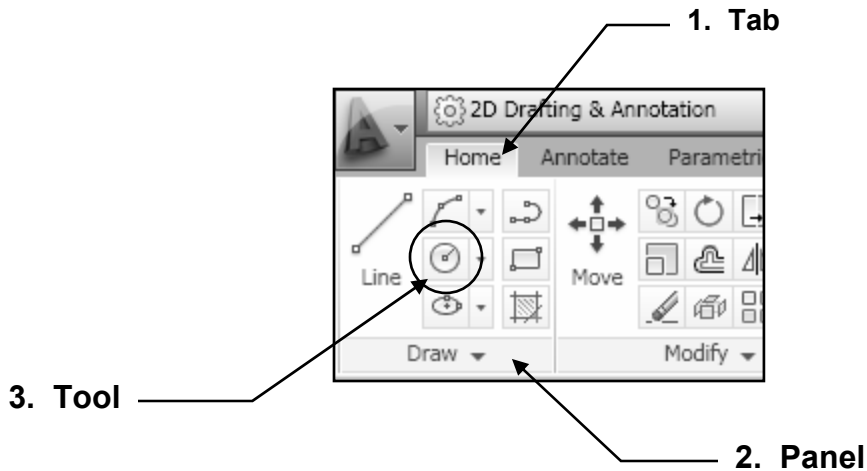
If you find that you have more than one drawing open you may find this confusing. I suggest that you refer to page 2-15 and follow the steps to change your AutoCAD system to only allow one drawing open at one time.

# HOW TO SELECT A COMMAND

AutoCAD provides you with 2 different methods for selecting commands. One is selecting a tool from the Ribbon, the other is typing the command. Both methods will accomplish the same end result. You decide which method you prefer. An example of each are shown below.

## Method 1: Selecting a tool from the Ribbon

1. First select a **tab** such as **Home**.
2. Locate the correct **Panel** such as **Draw**.
3. Select a **tool** such as **Circle**



Note:

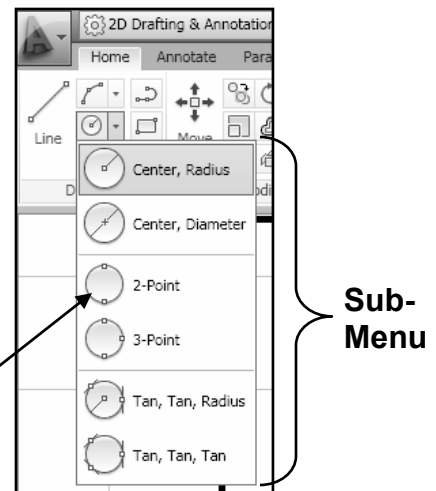
If the tool includes multiple types it will have a down-arrow ▼ beside the tool.



If you select the down-arrow a sub-menu will appear.

Select the desired type such as **2-Point**.

The latest selection will then become the current displayed tool because AutoCAD assumes that you may need that tool again.



Continued on the next page...

# HOW TO SELECT A COMMAND....continued

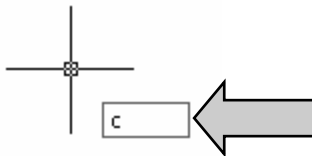
## Method 2: Keyboard entry

You may type commands on the command line or in the Dynamic Input tooltip. It depends on whether you have Dynamic Input On or Off.

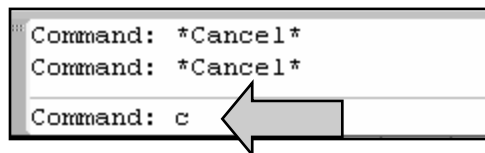
Note: Refer to Status Bar button **DYN** on page 1-15.

For example you could type the command **C** (for Circle) and then press <enter>.

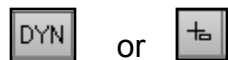
If you have **Dynamic Input (DYN) ON**, the letter **C** will appear within the Dynamic Input tooltip next to the cursor as shown below.



If you have **Dynamic Input OFF**, the letter **C** will appear on the Command Line as shown below.



**Dynamic Input** can be turned **ON** or **OFF** by selecting the Dynamic Input button located on the Status Bar or pressing the F12 key. (Refer to page 1-15)



Note:

Some commands have abbreviated entries such as **L** for **Line** or **C** for **Circle**. These abbreviations are called Aliases. You may find a listing of these aliases' in the acad.pgp or acadlt.pgp files. This list may also be customized.



# DRAWING LINES

A **Line** can be **one segment** or a **series of connected segments**.  
But each segment is an individual object.




**One Segment**  
**One object**



**Series of connected Segments**  
**5 objects**

Start the Line command using one of the following methods:

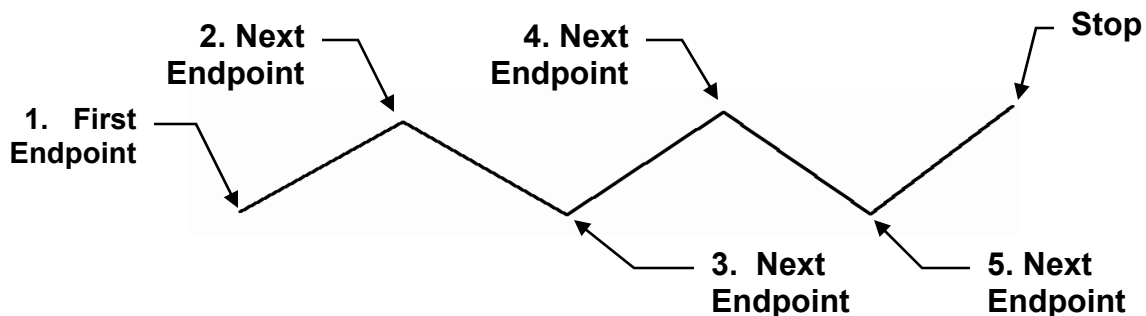
**Ribbon = Home tab / Draw Panel / **  
**or**  
**Keyboard = L <enter>**

**Lines** are drawn by specifying the locations for each endpoint.

Move the cursor to the location of the **“first”** endpoint (1) then press the left mouse button. Move the cursor again to the **“next”** endpoint (2) and press the left mouse button. Continue locating **“next”** endpoints until you want to stop.

There are 2 ways to **Stop drawing a line:**

Press the <enter> key or press the <Space Bar>



Helpful hint:  
To quickly repeat the Line command, press the Spacebar.

Continued on the next page...

# DRAWING LINES....continued

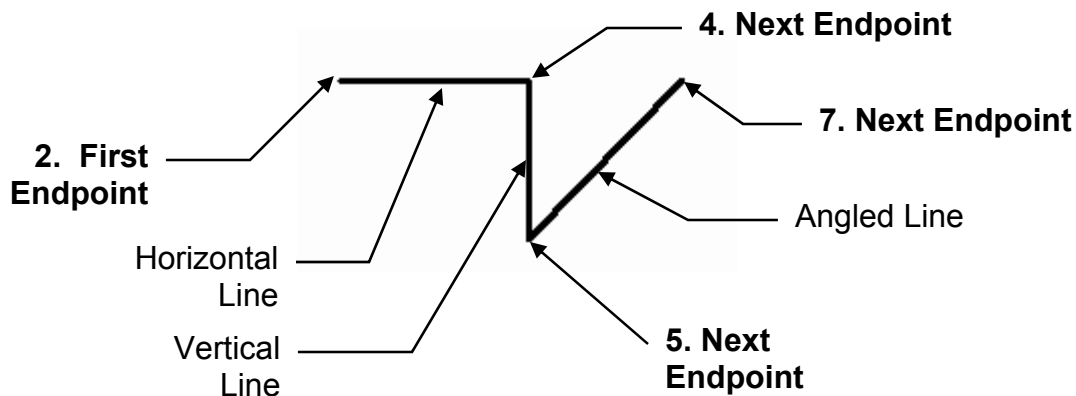
## Horizontal and Vertical Lines

To draw a Line perfectly Horizontal or Vertical select the **Ortho** mode by selecting the **Ortho** button on the Status Bar or pressing the F8 key.



Try the following example:

1. Select the **Line** command. (Refer to the previous page)
2. Place the **First endpoint** anywhere in the drawing area.
3. **Turn Ortho ON** by selecting the Ortho button or F8. (The “Ortho” button will change to blue when ON.)
4. Move the cursor to the right and press the left mouse button to place the **next endpoint**. (The line should appear perfectly horizontal.)
5. Move the cursor down and press the left mouse button to place the next endpoint. (The line should appear perfectly vertical)
6. Now turn **Ortho OFF** by selecting the Ortho button. (The “Ortho” button will change to gray when OFF.)
7. Now move the cursor up and to the right on an angle (the line should move freely now) and press the left mouse button to place the next endpoint.



Ortho can be turned ON or OFF at any time while you are drawing. It can also be turned ON or OFF temporarily by holding down the **Shift** key. Release the Shift key to resume.

Continued on the next page...

# DRAWING LINES....continued

## Closing Lines

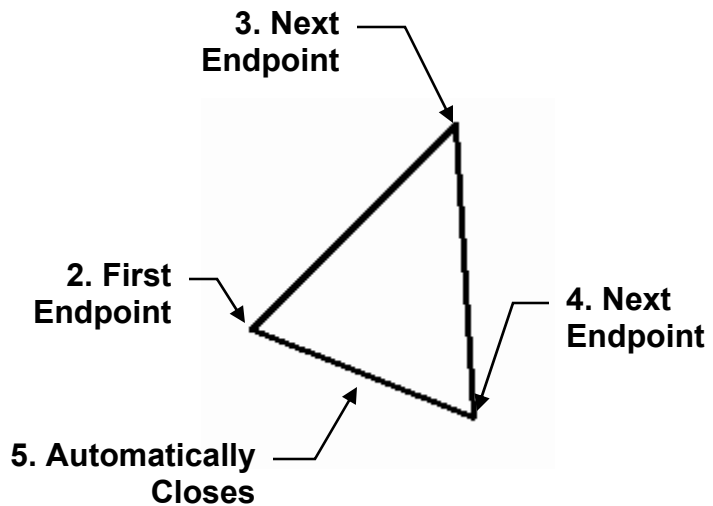
If you have drawn 2 or more line segments, the endpoint of the last line segment can be connected automatically to the first endpoint using the **Close** option.

Try the following example:

1. Select the Line command.
2. Place the **First endpoint**
3. Place the next endpoint
4. Place the next endpoint
5. Type **C** <enter>

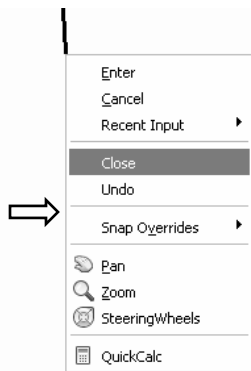
Or

5. Press the right mouse button and select **Close** from the **Shortcut** menu.



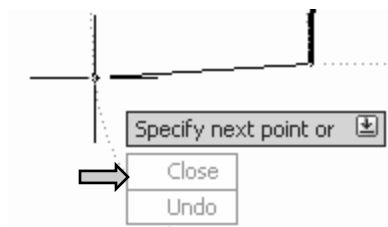
## What is the Shortcut Menu?

The Shortcut menu gives you quick access to command options.



### If you have Dynamic Input **OFF**:

Press the right mouse button.  
The shortcut menu will appear.  
Select an option.



### If you have Dynamic Input **ON**:

You may use the right mouse button or press the down arrow ↓ and the options will appear below the Dynamic Input prompt.

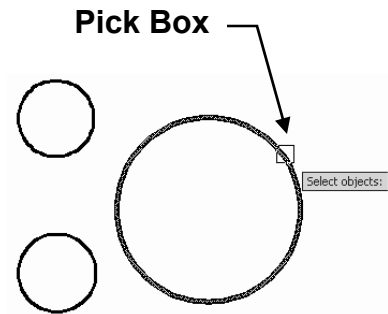
# METHODS OF SELECTING OBJECTS

Most AutoCAD commands prompt you to “**select objects**”. This means select the objects that you want the command to effect.

There are 2 methods. **Method 1. Pick**, is very easy and should be used if you have only 1 or 2 objects to select. **Method 2. Window**, is a little more difficult but once mastered it is extremely helpful and time saving. Practice the examples shown below.

## **Method 1. PICK :**

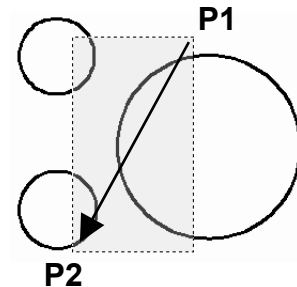
First start a command such as ERASE. (Press E <enter>) Next you will be prompted to “**Select Objects**”, place the cursor (pick box) on the object but do not press the mouse button yet. The object will highlight. This appearance change is called “Rollover Highlighting”. This gives you a preview of which object AutoCAD is recognizing. Press the left mouse button to actually select the highlighted object.



## **Method 2. WINDOW: Crossing and Window**

### **Crossing:**

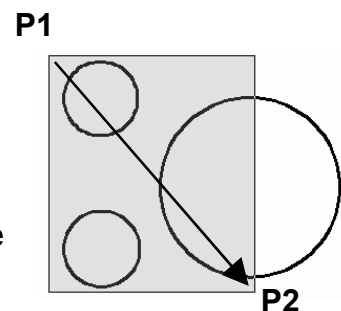
Place your cursor in the area up and to the right of the objects that you wish to select (**P1**) and press the left mouse button. (Do not hold the mouse button down. Just press and release) Then move the cursor down and to the left (**P2**) and press the left mouse button again. (Note: The window will be green and outer line is dashed.) **Only** the objects that this window **crosses** will be selected.



In the example on the right, all 3 circles have been selected because the Crossing Window crosses a portion of each.

### **Window:**

Place your cursor in the area up and to the left of the objects that you wish to select (**P1**) and press the left mouse button. Then move the cursor down and to the right of the objects (**P2**) and press the left mouse button. (Note: The window will be blue and outer line is solid.) **Only** the objects that this window **completely enclosed** will be selected.



In the example on the right, only 2 circles have been selected. (The large circle is **not completely enclosed**.)

# ERASE


There are 3 methods to erase (delete) objects from the drawing. They all work equally well. You decide which one you prefer to use.

## Method 1

Select the **Erase** command first and then select the objects.

### Example:

1. Start the **Erase** command using one of the following:

**Ribbon = Home tab / Modify panel / **

or

**Keyboard = E <enter>**

2. Select objects: ***Pick one or more objects***

Select Objects: ***Press <enter> and the objects selected will disappear.***

## Method 2

Select the Objects first and then the **Delete** Key.

### Example:

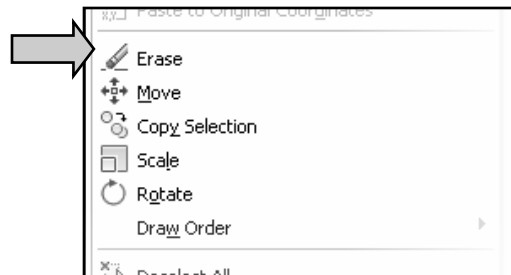
1. Select the object to be erased.
2. Press the Delete Key.

## Method 3


Select the Objects first and then select Erase command from the Shortcut Menu.

### Example:

1. Select the object to be erased.
2. Press the right Mouse button.
3. Select **Erase** from the Shortcut Menu.



### Note: Very Important

If you want the erased objects to return, select the **Undo tool**  from the **Quick Access Toolbar**. This will Undo the last command.

More about Undo and Redo later.

# STARTING A NEW DRAWING

**Starting A New Drawing** means that you want to start with a previously created Template file. That is why I taught you “how to create a template” at the beginning of this lesson. You will use the **2011-Workbook Helper.dwt** template each time you are instructed to **Start a New Drawing**.

*Note: Do not use the **New** tool if you want to **open** an **existing** drawing. Refer to page 2-15 to **OPEN** an existing drawing file.*

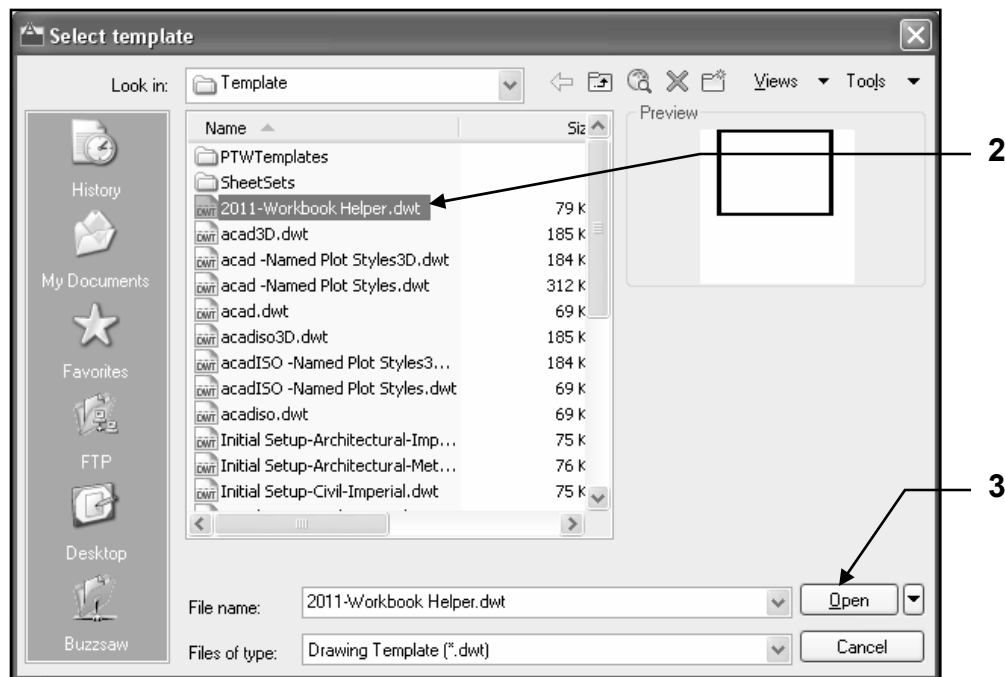
## HOW TO START A NEW DRAWING

1. Select the **NEW** tool from the **Quick Access Toolbar**.



2. Select the **2011-Workbook Helper.dwt** from the list of templates.

**Note: If you do not have this template, refer to page 2-2 for instructions.**



3. Select the **Open** button.

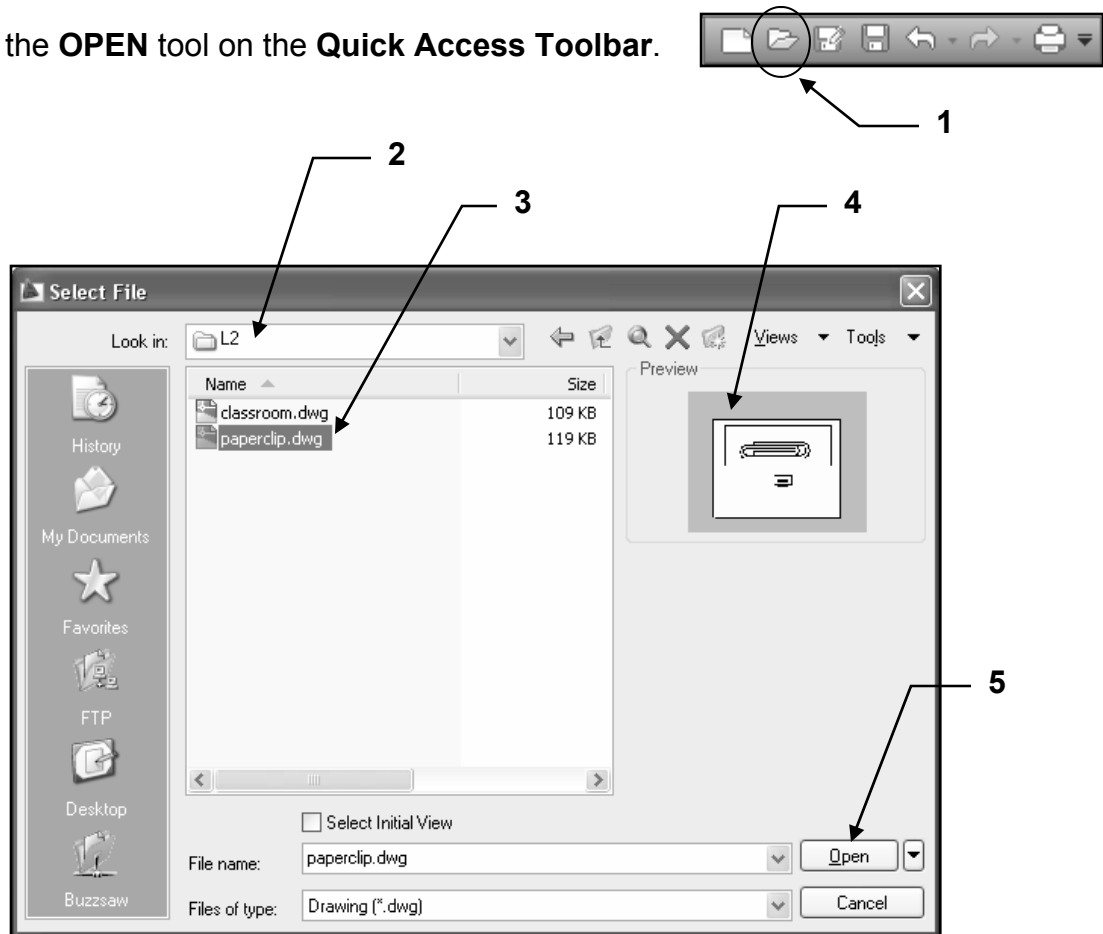
**Note:**

If you find that you have more than one drawing open you may find this confusing. I suggest that you refer to page 2-16 and follow the steps to change your AutoCAD system to only allow one drawing open at one time.

# OPENING AN EXISTING DRAWING FILE

Opening an **Existing Drawing File** means that you would like to open, on to the screen, a drawing that has been previously created and saved. Usually you are opening it to continue working on it or you need to make some changes.

1. Select the **OPEN** tool on the **Quick Access Toolbar**.



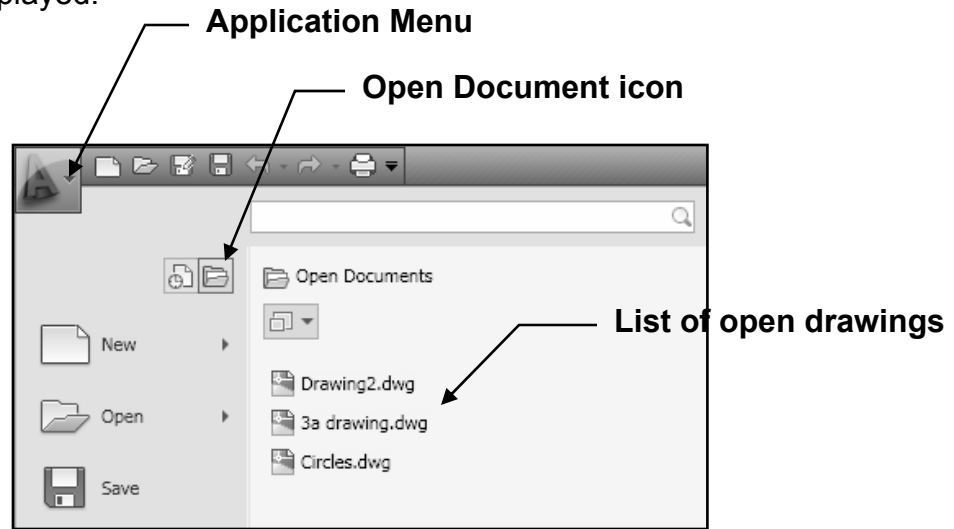
2. Locate the Directory and Folder in which the file had previously been saved.
3. Select the File that you wish to OPEN.
4. A **Thumbnail Preview image** of the file selected is displayed in the Preview area.
5. Select the **Open** button.

## Note:

If you find that you have more than one drawing open you may find this confusing. I suggest that you refer to page 2-16 and follow the steps to change your AutoCAD system to only allow one drawing open at one time.

# MULTIPLE OPEN FILES

AutoCAD allows you to have multiple drawing files open at the same time. If you select the **Application Menu** and select the **Open Documents** icon a list of all open drawings will be displayed.



This is very helpful to **experienced** AutoCAD users but can be confusing for users **NEW** to AutoCAD.

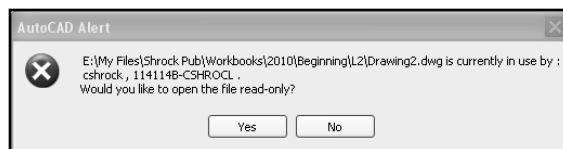
While using this workbook you might find it helpful if you change a setting to prevent opening more than one file at one time. This will only change AutoCAD and will have no affect on any other software on your computer.

1. Close all but one drawing file. You should only have one drawing open.
2. Type: sdi <enter>
3. Type: 1 <enter>

Now AutoCAD will restrict you to one drawing on the screen. If you choose to go back to multiple drawings repeat the steps above except enter "0" instead of "1".

## Read-Only files

If the SDI setting is off, allowing multiple open files, and you open a drawing file that you already have open AutoCAD will display this warning.



It is best if you select the **No** button. If you select the **Yes** button, AutoCAD will open a duplicate file as a "**Read-only**" file. A Read-only file should only be used as a reference file. It is not good practice to work on a Read-only file.



# SAVING A DRAWING FILE

After you have completed a drawing, it is very important to save it. Learning how to save a drawing correctly is almost more important than making the drawing. If you can't save correctly, you will lose the drawing and hours of work.

There are 2 commands for saving a drawing: **Save** and **Save As**.

I prefer to use **Save As**.

The **Save As** command always pauses to allow you to choose where you want to store the file and what name to assign to the file. This may seem like a small thing, but it has saved me many times from saving a drawing on top of another drawing by mistake.

The **Save** command will automatically save the file either back to where you retrieved it or where you last saved a previous drawing. Neither may be the correct destination. And may replace a file with the same name. So play it safe, use **Save As** for now.

1. Select the **Saveas** command using one of the following:

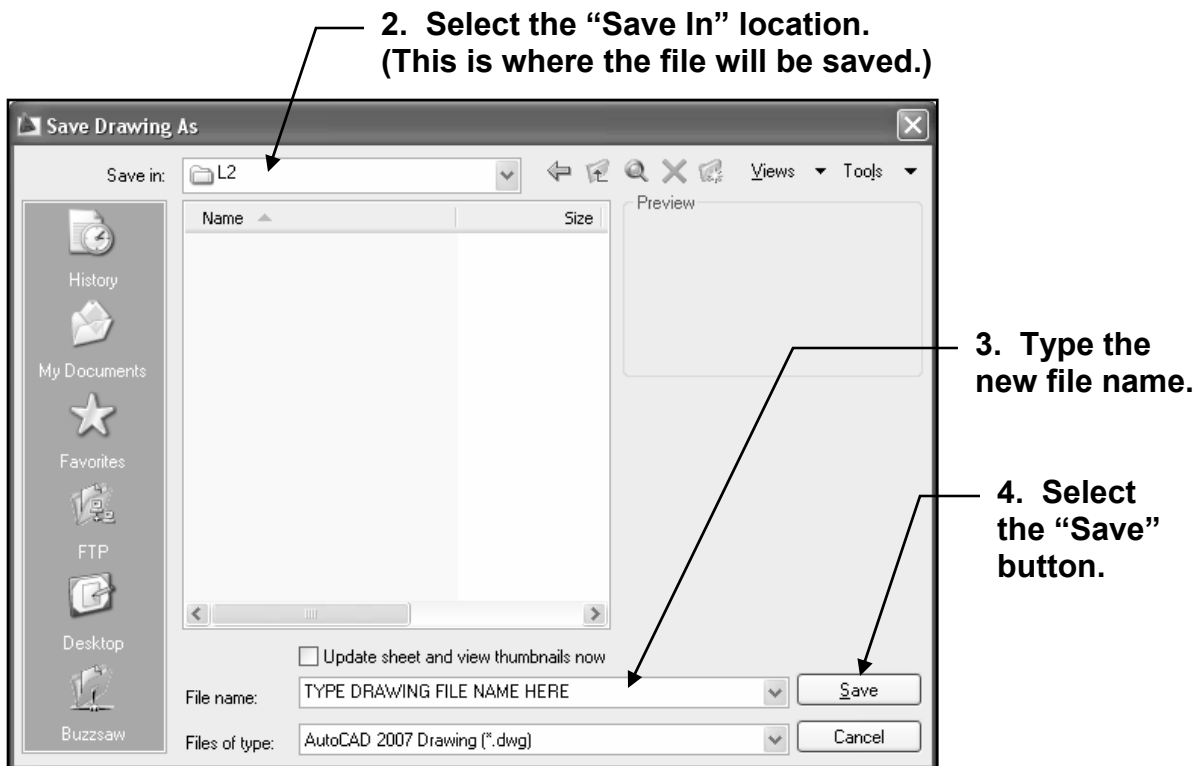
Quick Access Toolbar = 

or

Application Menu = **Save As / AutoCad Drawing**

or

Keyboard = **Saveas <enter>**



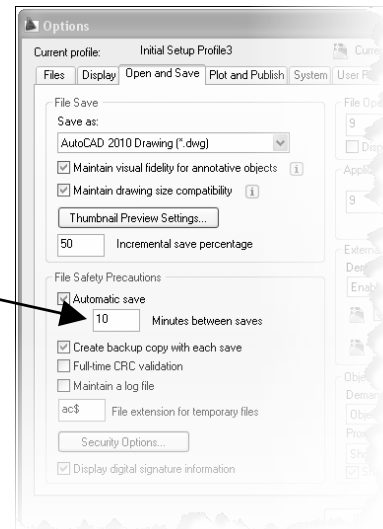
# AUTOMATIC SAVE

## AUTOMATIC SAVE

If you turn the automatic save option ON, your drawing is saved at specified time intervals. These temporary files are automatically deleted when a drawing closes normally. The default save time is every 10 minutes. You may change the save time intervals and where you would prefer the Automatic Save files to be saved.

### How to set the Automatic Save intervals

1. Type **options** <enter>
2. Select the **Open and Save** tab.
3. Enter the desired **minutes between saves**.
4. Select the **OK** button.

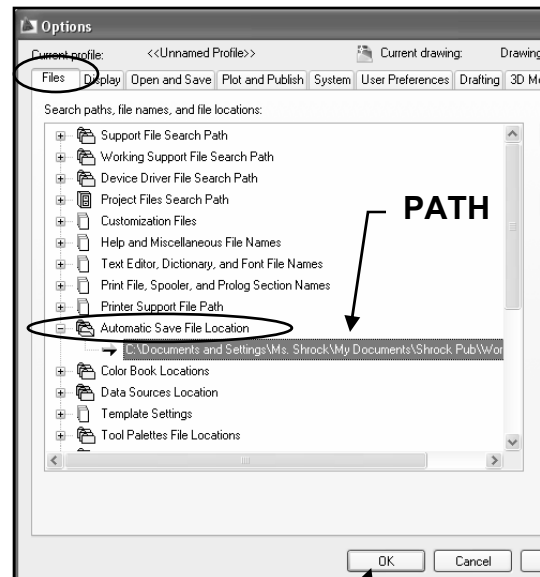


### How to change the Automatic Save location

1. Type **options** <enter>
2. Select the **Files** tab
3. Locate the **Automatic Save File Location** and click on the + to display the path.
4. Double click on the path
5. Browse to locate the Automatic Save Location desired and highlight it.
6. Select **OK**.

(The browse box will disappear and the new location path should be displayed under the Automatic Save File Location heading)

7. Select **OK** to accept the change.



7

# BACK UP FILES and RECOVER

## BACK UP FILES

When you save a drawing file, Autocad creates a file with a **.dwg** extension. For example, if you save a drawing as **12b**, Autocad saves it as **12b.dwg**. The next time you save that same drawing, Autocad replaces the old with the new and renames the old version **12b.bak**. The old version is now a back up file. (Only 1 backup file is stored.)

### How to open a back up file:

You can't open a **.bak** file.

It must first be renamed with a **.dwg** file extension.

### How to view the list of back up files:

The backup files will be saved in the same location as the drawing file.

You must use Windows Explorer to locate the **.bak** files.

### How to rename a back up file:

1. Right click on the file name.
2. Select "Rename".
3. Change the **.bak** extension to **.dwg** and press <enter>.

## RECOVERING A DRAWING

In the event of a program failure or a power failure open files should be saved automatically. (Refer to page 2-18)

When you attempt to re-open the drawing the **Drawing Recovery Manager** will display a list of all drawing files that were open at the time of a program or system failure. You can preview and open each **.dwg** or **.bak** file to choose which one should be saved as the primary file.

# EXITING AUTOCAD

To safely exit AutoCAD follow the instructions below.

1. Save all open drawings.
2. Start the **EXIT** procedure using one of the following.

**Ribbon = None**

**or**

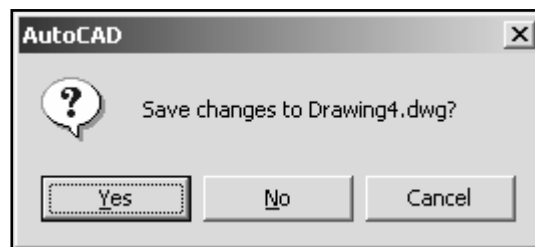
**Application Menu =** 

**or**

**Keyboard = Exit <enter>**

If any changes have been made to the drawing since the last **Save As**, the warning box shown below will appear asking if you want to **SAVE THE CHANGES?**

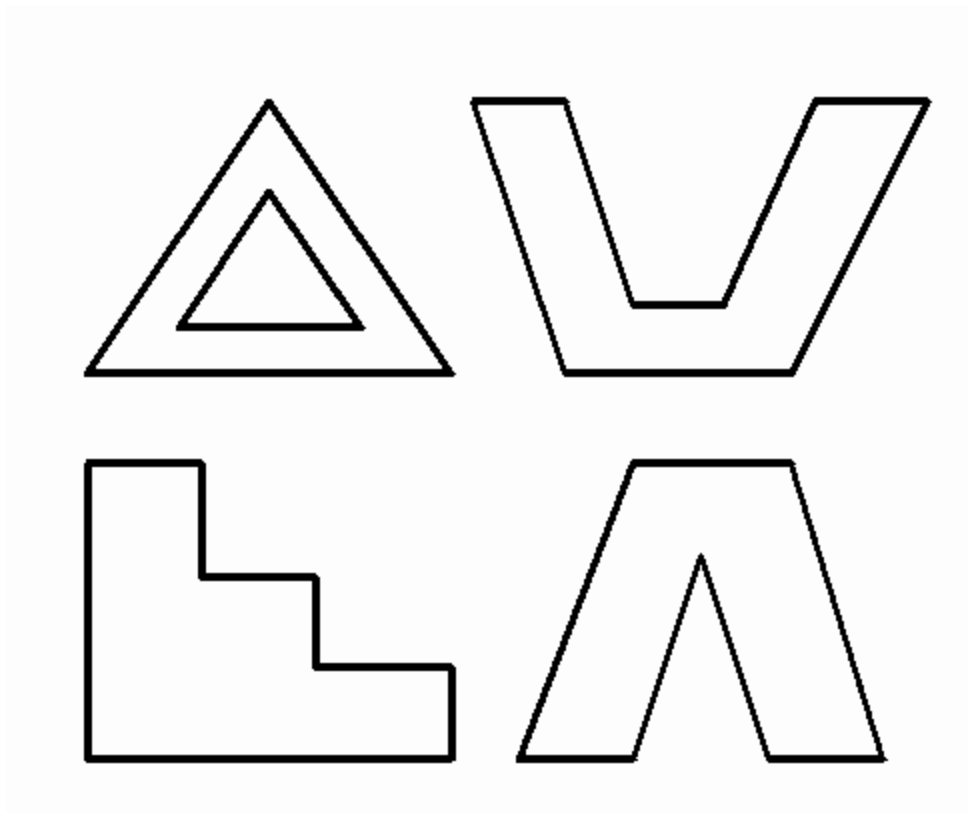
Select **YES**, **NO** or **CANCEL**.



# EXERCISE 2A

## INSTRUCTIONS:

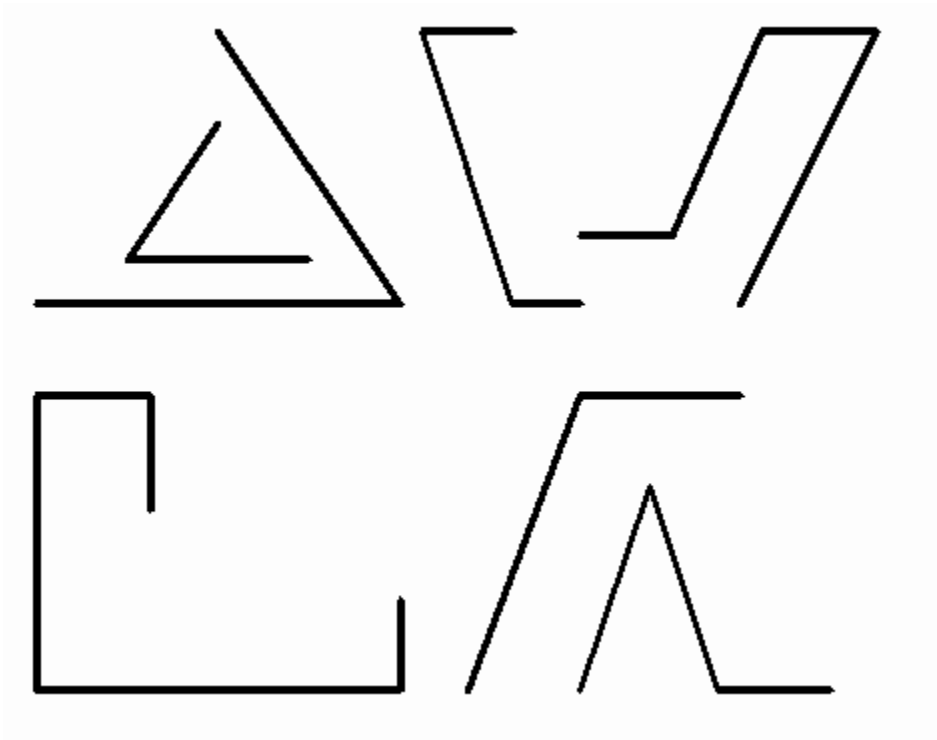
1. Start a **NEW** file using **2011-Workbook Helper.dwt**.
2. **Draw** the objects below using:
  - A. **Line** command
  - B. **Ortho** (F8) **ON** when drawing Horizontal and Vertical lines.
  - C. **Ortho** (F8) **OFF** when drawing lines on an Angle.
  - D. Turn **Increment Snap** (F9) **ON**
  - E. Turn **Osnap** (F3) **OFF**
  - F. Turn **Grid** (F7) **ON**
  - G. Use the **Close** option
3. **Save** the drawing as: **EX2A**



# EXERCISE 2B

## INSTRUCTIONS:

1. **OPEN EX2A**, if not already open.
2. **Erase** the missing Lines as shown.
  - A. Turn **Osnap** (F3) **OFF** (It will be easier to move the cursor accurately)
3. **Save** the drawing as: **EX2B**



# EXERCISE 2C

## INSTRUCTIONS:

1. Start a **NEW** file using **2011-Workbook Helper.dwt**.
2. **Draw** the objects below using:
  - A. **Line** command
  - B. **Ortho** (F8) **ON** when drawing Horizontal and Vertical lines.
  - C. **Ortho** (F8) **OFF** when drawing lines on an Angle.
  - D. Turn **Increment Snap** (F9) **ON**
  - E. Turn **Osnap** (F3) **OFF**
  - F. Turn **Grid** (F7) **ON**
  - G. Use the **Shift Key** to toggle Ortho ON and OFF
3. **Save** the drawing as: **EX2C**



# EXERCISE 2D

## INSTRUCTIONS:

1. Start a **NEW** file using **2011-Workbook Helper.dwt**.
2. **Draw** the objects below using:
  - A. **Line** command
  - B. **Ortho** (F8) **ON** when drawing Horizontal and Vertical lines.
  - C. **Ortho** (F8) **OFF** when drawing lines on an Angle.
  - D. Turn **Increment Snap** (F9) **ON**
  - E. Turn **Osnap** (F3) **OFF**
  - F. Turn **Grid** (F7) **ON**
  - G. Use the **Shift Key** to toggle Ortho ON and OFF
3. **Save** the drawing as: **EX2D**

