CHAPTER 1

Interacting with AutoCAD

AFTER COMPLETING THIS CHAPTER, YOU WILL BE ABLE TO:

- Launch AutoCAD
- Maneuver the user interface
- Understand how to interact with AutoCAD

Launching AutoCAD

Autodesk, the makers of AutoCAD, usually release a new version of the software every year. With each new release, the software becomes more streamlined to make it easier to use. New toolbars and functions are also added to enable the user to work more efficiently. The overall interface is not markedly different between the versions. If you are using AutoCAD release 2006 or 2007, you should be able to quickly adapt, although your screen interface will not have the newest functions of the current release. Regardless of the release you are using, understanding how to interact with AutoCAD is important.

Launching AutoCAD via the Shortcut Icon

AutoCAD is launched similarly to other Windows-based software applications: either via the shortcut icon on your computer's desktop or the Start menu. (See Figure 1.1.) To launch AutoCAD via the shortcut icon, do the following:

Double-click the *AutoCAD* shortcut icon with the **left** mouse button.

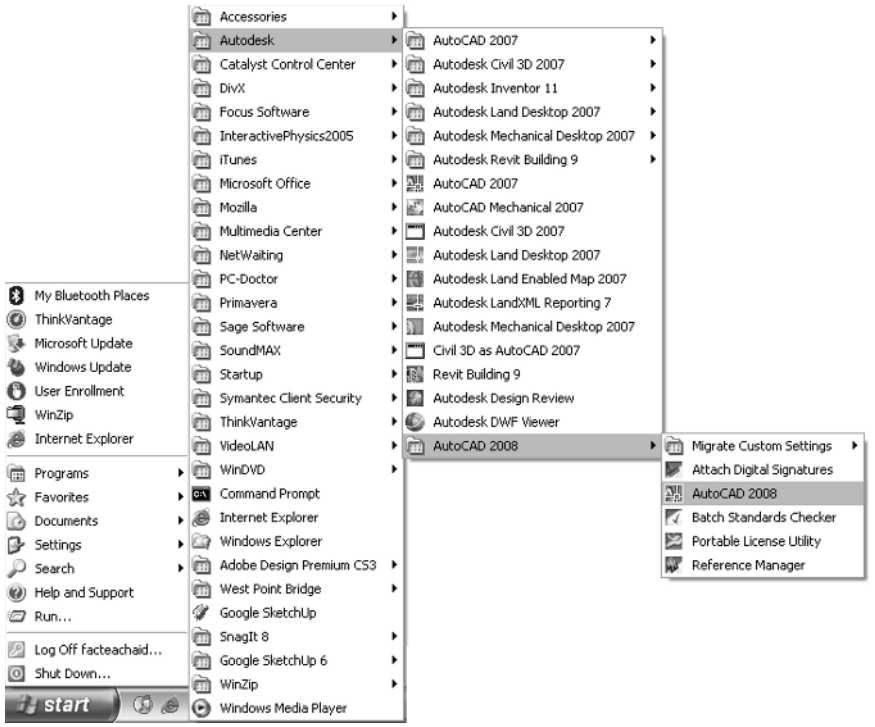
►**FIGURE 1.1:** Launching AutoCAD via the shortcut icon

Launching AutoCAD via the Start Menu

To launch AutoCAD using the Start menu, do the following:

1. **Click** the *Start* menu (Figure 1.2) with the **left** mouse button.
2. **Select** *All Programs* with the **left** mouse button. **Navigate** to the *Autodesk* folder and **click** it with the **left** mouse button.
3. **Select** *AutoCAD 2008* or the version of the software that is currently loaded on your computer. **Click** the **left** mouse button.

This action will launch a new session of AutoCAD.



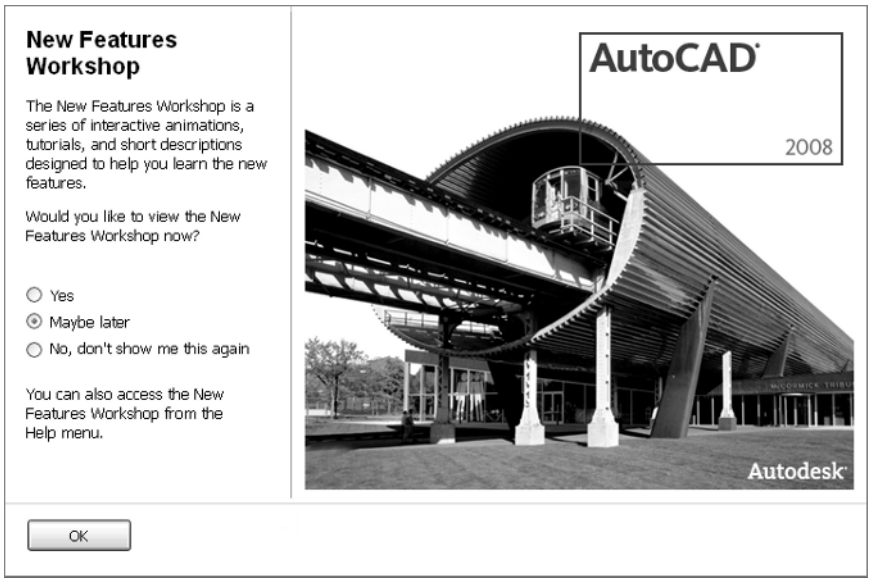
►**FIGURE 1.2:** Launching AutoCAD via the Start menu

At startup, AutoCAD will launch a New Features Workshop window. This window will give you the option to view or not view the new features of the software and to keep the window from launching at startup. The New Features Workshop (Figure 1.3) can also be accessed using the Help menu at any time. To continue launching your session of AutoCAD, follow these steps:

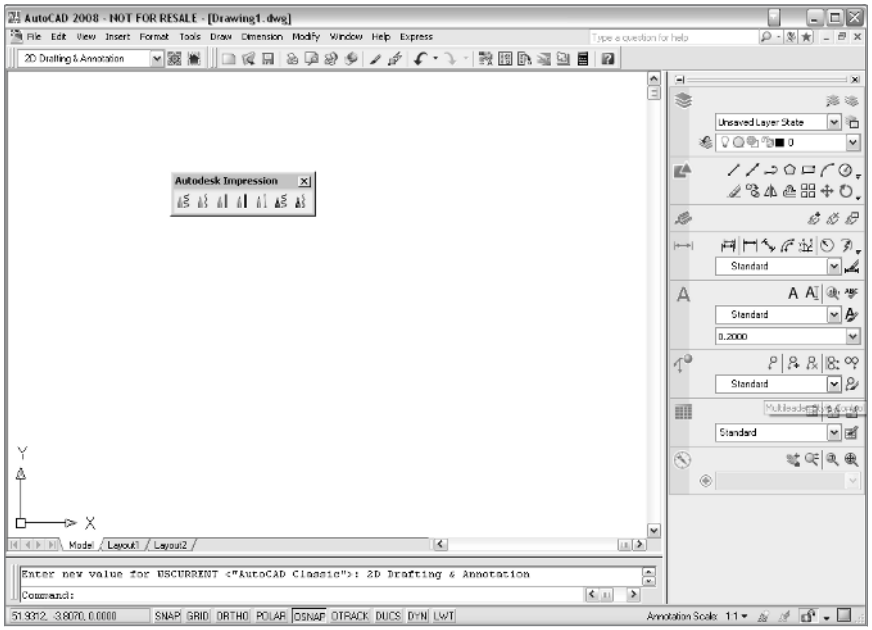
1. **Click** the *No* button with the **left** mouse button.
2. **Click** the *OK* button with the **left** mouse button.

AutoCAD 2008's new features will be discussed in a later chapter.

A new AutoCAD drawing session will launch. This drawing session will typically launch in the 2D Drafting and Annotation AutoCAD Workspace (Figure 1.4). This workspace contains the new toolbars and features associated with the current release.



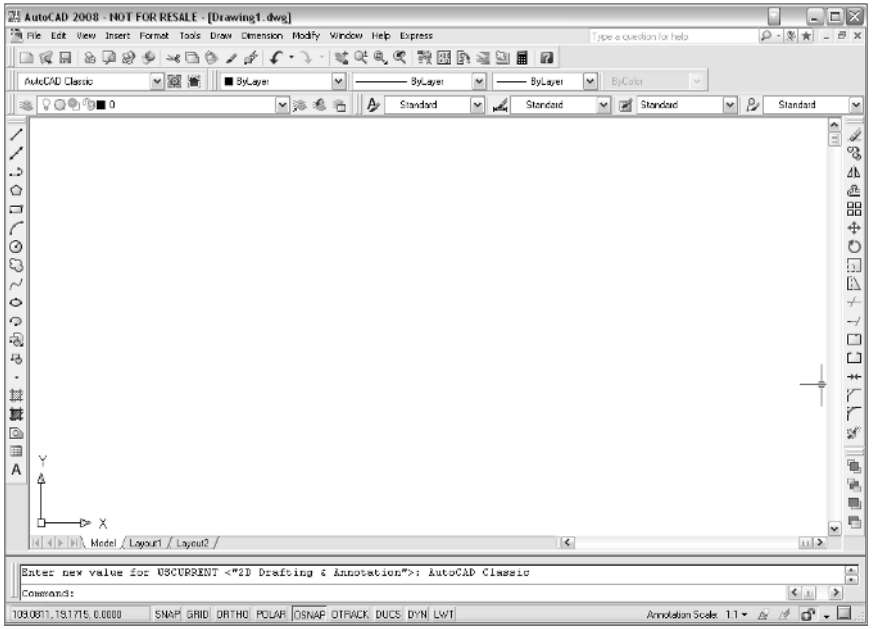
►**FIGURE 1.3:** The New Features Workshop window



►**FIGURE 1.4:** The 2D Drafting and Annotation AutoCAD Workspace

Because users have different releases of AutoCAD, these examples will launch the AutoCAD Classic Workspace (Figure 1.5). This workspace launches similarly to past releases of AutoCAD. To launch this workspace, do the following:

With the **left** mouse button, **click** the *AutoCAD Classic Workspace* selection from the Workspaces toolbar.



►**FIGURE 1.5:** The AutoCAD Classic Workspace

Starting a New Session of AutoCAD

To start a new session of AutoCAD using the pulldown menu, follow these steps:

Click *File* and **select** *New* with the **left** mouse button.

To start a new session of AutoCAD using the command line, follow these steps:

Type *new* and **press** the *Enter* key on the keyboard, or **click** the **right** mouse button (right-click) and **select** *Enter* from the tooltip window.

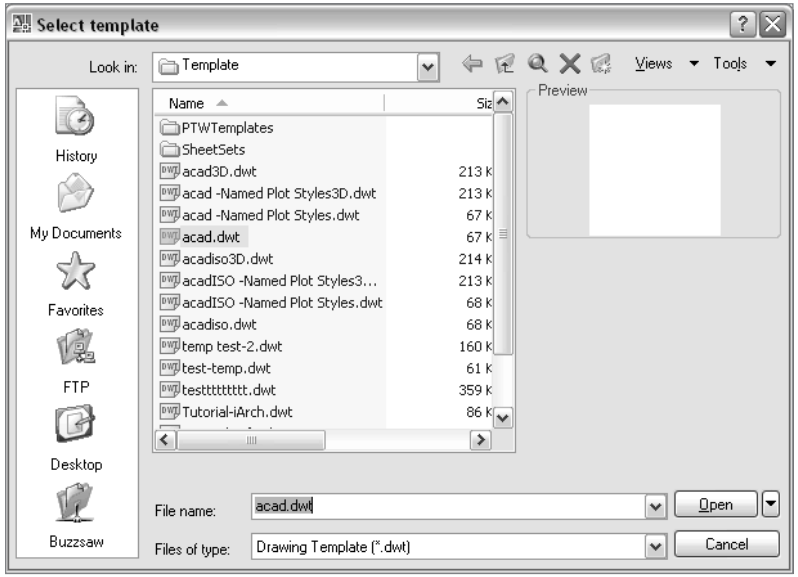
►**FIGURE 1.6:** The New Drawing icon

Selecting a Template

Now that the software has been launched, start a new drawing file using a template. The software comes with many default templates already added. To access these templates, do the following:

1. **Click** the *File* pulldown menu and **select** *New* with the **left** mouse button. A Select Template window will launch, as in Figure 1.7.
2. **Select** the *acad* or *acad.dwt* template with the **left** mouse button.
3. **Click** the *Open* button with the **left** mouse button.

This action will start a new drawing file.



►**FIGURE 1.7:** The Select template window

The Save As Function

To save a file using the pulldown menu, do the following:

Click *File* and **select** *Save As* with the **left** mouse button.

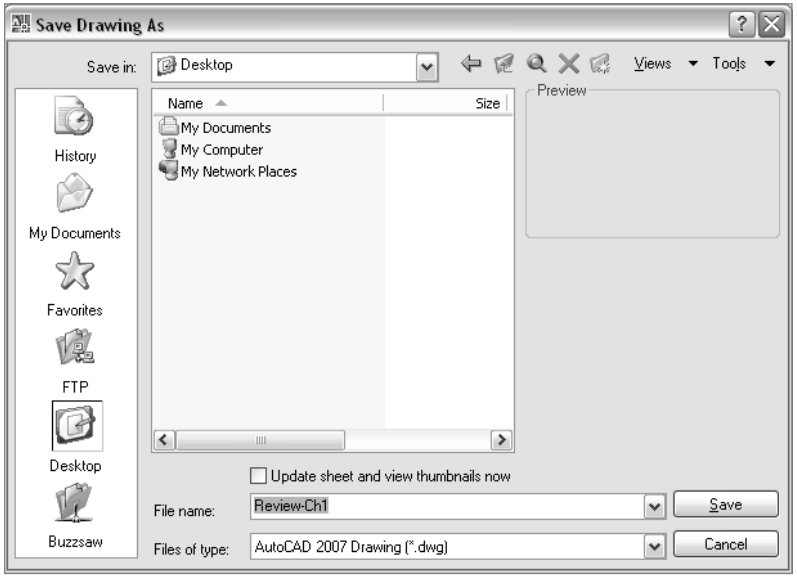
To save a file using the command line, do the following:

Type *Save* and **press** the *Enter* key on the keyboard, or **click** the **right** mouse button and **select** *Enter* from the tooltip window.

To name and save your drawing file, do the following:

1. **Click** the *File* pulldown menu and **select** *Save As* with the **left** mouse button. The Save Drawing As window will launch, as in Figure 1.8.
2. **Navigate** to the appropriate folder on your computer.
3. **Name** your file *Review-Ch1* by entering the information in the *File Name* area.
4. **Click** the *Save* button with the **left** mouse button.

These steps will save your drawing file to the folder that you selected. This is critical because every 10 to 15 minutes AutoCAD will back up your drawing once it has been saved using a default setting.



►**FIGURE 1.8:** The Save Drawing As window

Setting Drawing Units

To set drawing units using the pulldown menu, do the following:

Click *Format* and **select** *Units* with the **left** mouse button.

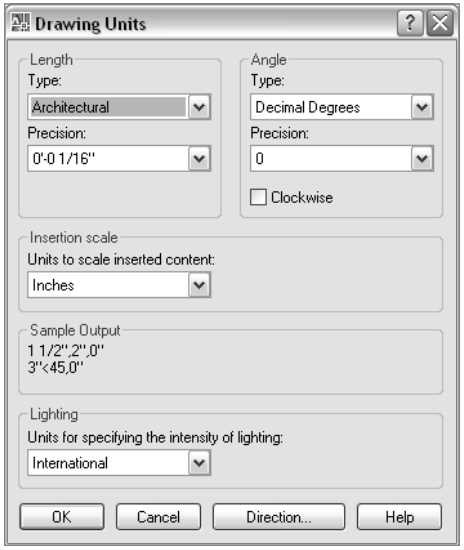
To set drawing units using the command line, do the following:

Type *ddunits* and **press** the *Enter* key on the keyboard, or **right-click** and **select** *Enter* from the tooltip window.

Next, the drafting units will need to be set for your drawing. In order to set them to architectural units, do the following:

1. **Click** the *Format* pulldown menu and **select** *Units* with the **left** mouse button. A Drawing Units window will launch.
2. In the *Length* section, **click** the *Type* pulldown menu, and **click** *Architectural* with the **left** mouse button.
3. **Click** the *OK* button with the **left** mouse button.

This action will set your drawing units to architectural and close the Drawing Units window. (See Figure 1.9.)



►**FIGURE 1.9:** The Drawing Units window

Setting Drawing Limits

To set drawing units using the pulldown menu, do the following:

Click *Format* and **select** *Drawing Limits* with the **left** mouse button.

To set drawing units using the command line, do the following:

Type *limits* and **press** the *Enter* key on the keyboard, or **type** *limits* and **right-click**.

Drawing limits are usually set so that objects drawn will be scaled to fit on your display. Drawing limits are based on the ultimate page size of your final drawing. The ultimate page size will be dictated by the overall size and dimensions of your drawing. For example, if you are drawing a 100,000 square-foot floor plan, obviously, it will not fit on an 8½″ × 11″ page size at an acceptable scale.

Floor plans are generally drawn at a scale of ⅛″=1′-0″ or ¼″=1′-0″, and elevations are drawn at a scale of ¼″=1′-0″ or ½″=1′-0″. Therefore, you will need to take into account the size of your project and the drawing scale prior to setting the drawing limits. However, it is possible to draw outside the drawing limits. To set the drawing limits, do the following:

1. **Click** *Format* and **select** *Drawing Limits* with the **left** mouse button.

   Command Line Prompt:
   ```
   Command: Reset Model space limits:
   Specify lower-left corner or [On/Off] <0'-0",0'-0">:
   ```

2. **Press** the *Enter* key on the keyboard, or **right-click** and **select** *Enter* from the tooltip window.

   Command Line Prompt:
   ```
   Command:  Reset Model space limits:
   Specify upper-right corner <1'-0" ,0'-9">:
   ```

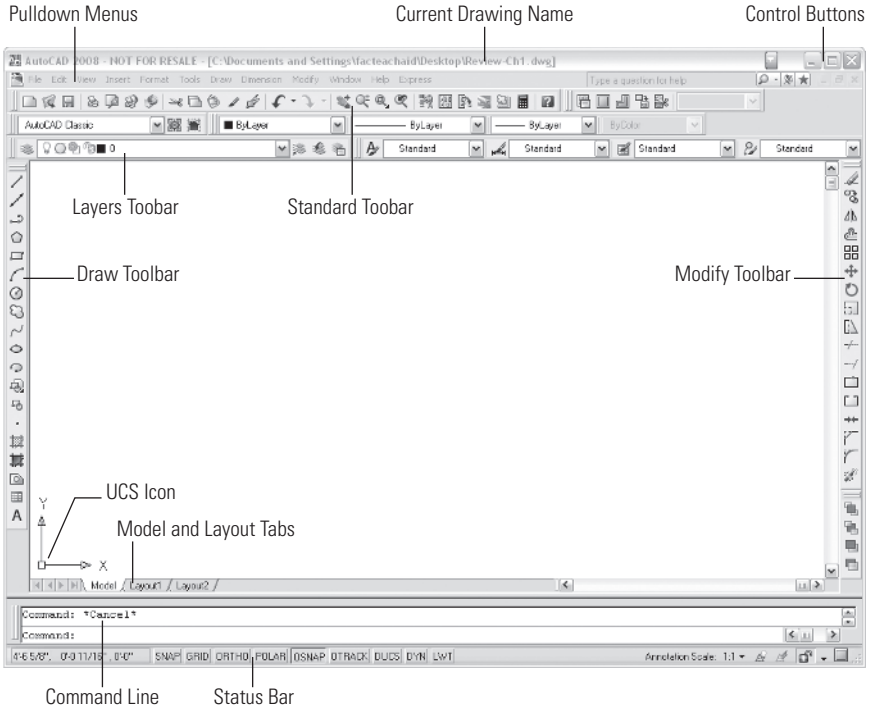
3. To enter a drawing limit for a page size that is 24″× 36″, do the following:

   Type *36,24* on the command line and **press** the *Enter* key, or **enter** *36,24* and **right-click**.

Your drawing limits will be set and the command will end.

Maneuvering the User Interface

Before you can create any drawings, you must be familiar with the AutoCAD interface (Figure 1.10). Here is a brief overview of its major elements.



►**FIGURE 1.10:** The AutoCAD interface

Components of the AutoCAD Interface

The band in Figure 1.11 identifies the name of the current drawing file.

►**FIGURE 1.11:** The name of the current drawing

The software Control buttons (Figures 1.12 and 1.13) control the operation of the session. The top series of buttons within the current-drawing name band controls the AutoCAD session, and the buttons directly below them control the current drawing session. The left button will minimize the current session, the middle button will maximize the current session, and the right button will close the current session.

►**FIGURE 1.12:** The Control buttons — AutoCAD Session

►**FIGURE 1.13:** The Control buttons — Current drawing session

The toolbar in Figure 1.14 allows access to all of the commands and procedures. Using the pulldown menus is only one way to execute commands.

►**FIGURE 1.14:** The pulldown menus

The Info Center toolbar (Figure 1.15) allows you to access to the AutoCAD Help menu.

►**FIGURE 1.15:** The Info Center toolbar

The Standard toolbar (Figure 1.16) is typically launched at startup and includes many of the standard icons.

►**FIGURE 1.16:** The Standard toolbar

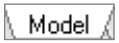
The Drawing toolbar (Figure 1.17) contains the basic drawing command icons.

►**FIGURE 1.17:** The Drawing toolbar

The Modify toolbar (Figure 1.18) contains the basic modifying command icons.

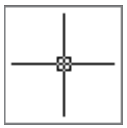
►**FIGURE 1.18:** The Modify toolbar

The Model space tab (Figure 1.19) is where you can access the drawing/model space of your drawing session.



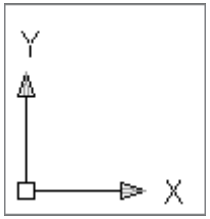
►**FIGURE 1.19:** The Model space tab

The Crosshair tool (Figure 1.20) is the selection cursor.



►**FIGURE 1.20:** The Crosshair

The UCS icon (Figure 1.21) identifies the User Coordinate System. The Y-axis is the vertical plane, and the X-axis is the horizontal plane. The intersection of the two coordinates represents 0,0.

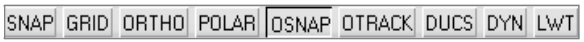


►**FIGURE 1.21:** The UCS icon

The command line (Figure 1.22) is the area of the screen that allows keyboard entry.

►**FIGURE 1.22:** The command line

The tabs on the Status bar (Figure 1.23) control the status of the drawing aids.



►**FIGURE 1.23:** The Status bar

Interacting with AutoCAD

In order to draw 2D drawings, you can use either AutoCAD or AutoCAD LT. The differences between the two are slight with regard to preparing 2D drawings. AutoCAD LT is a less expensive program with approximately 80 percent of the functionality of AutoCAD. Basically, Autodesk removed the 3D capabilities of AutoCAD and some of the customization functions, making it considerably more affordable for casual users and small firms that don't need to create 3D drawings or that will use alternative software such as SketchUp to prepare 3D drawings.

The following are some useful tips when interacting with AutoCAD.

Naming AutoCAD Files

When you are naming AutoCAD files, take special care when you are using symbols. The only symbols that you should use are the following:

- The dash (—)
- The underscore (_)
- The period (.)

Any other symbols could corrupt your drawing file, rendering it useless. Numbers and letters (whether uppercase or lowercase) can be used.

Layers

One of the major benefits of using AutoCAD is that your drawing is composed of layers. Typically, geometry is drawn once and subsequent information is added to the drawing on separate layers. When a new session of AutoCAD is launched, layer 0 is the default layer. Think of layer 0 as your main/transfer drawing layer. The Layer Properties Manager (Figure 1.24) manages all of the layers and the properties of your drawing.

►**FIGURE 1.24:** The Layer Properties Manager

Model Space

All of the elements of your drawing should be drawn within model space at a 1:1 ratio.

Command Entry

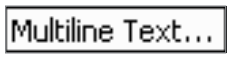
Commands can be executed in many ways. It's up to you to decide which way is the easiest:

- Using the command line
- Using icons
- Using pulldown menus

Regardless of the command-entry method used, it's important to follow along with the command line. The command line will guide you through the steps to perform a given function. It's important to insert information when AutoCAD prompts you and then press the Enter key to continue. Other prompts to be aware of on the command line are items within angled brackets **(< >)** or regular brackets **([ ])**. Inside angled brackets are the default settings of the command. To accept the default, simply press the Enter key. Items enclosed in brackets are options that you can choose. These options are *keywords*, and the first letter of the word is in uppercase. To select a particular option, simply type the uppercase letter and press the Enter key. New users should watch the command line closely when they are first learning to use a tool.

Tooltip Windows

When you are learning to draw, you should try several different ways of entering the commands. Using the icons can be the easiest way to execute commands. In order to familiarize yourself with the icons, hover your cursor over any icon. A small *tooltip window* will appear, identifying that icon. (See Figure 1.25.)



►**FIGURE 1.25:** A tooltip window

Available Toolbar Menu

AutoCAD has many available toolbars from which you can choose. Not all of the toolbars are visible on your display when the software is first launched. You may inadvertently click or move a toolbar and turn it off.

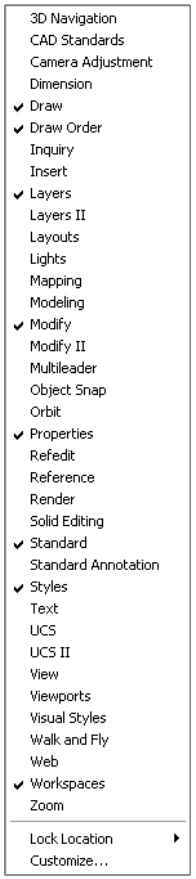
To search or recall a toolbar, do the following:

Hover over any *icon* visible in your drawing session and **right-click**. The corresponding toolbar menu will launch. This list will show a check mark next to any toolbar that is currently docked in your drawing.

To make a particular toolbar visible, do the following:

Click the *name* of a toolbar that does not have a check mark with the **left** mouse button.

This action will add the toolbar to your drawing and either dock it to an available location or place it in the model space area of your drawing and close the Available Toolbar menu. (See Figure 1.26.)



►**FIGURE 1.26:** The Available Toolbar menu

Docked/Floating Toolbars

When a new drawing session is launched, default toolbars are docked within your display. *Docked* toolbars (Figure 1.27) are set in the same location every time the software is launched. *Floating* toolbars (Figure 1.28) sometimes appear within the model space area of your display. Although floating toolbars can remain exactly where they are, it is a good idea to dock them to an available location within your display because your viewable drawing space is at a premium. To dock a floating toolbar within your display, do the following:

1. **Click** and **hold** the *top band* of the floating toolbar with the **left** mouse button.
2. **Drag** your cursor to an available space at the perimeter of your display and **release** the **left** mouse button.

Clicking, dragging, and droppping will dock the toolbar at that location.

►**FIGURE 1.27:** A docked toolbar

►**FIGURE 1.28:** A floating toolbar

The Three-Button Mouse

Familiarity with your mouse is key. A three-button mouse enables you to do the following:

- The **left** mouse button will execute a *Pick* command.
- The **right** mouse button will execute the *Enter* command.
- The **middle** mouse button or the wheel will execute the *Zoom* or *Pan* command.

Flyout Menus

On any given toolbar, flyout menus (Figures 1.29 and 1.30) contain icons that offer additional functions/options of the same command. Any icon that contains a flyout menu will have an arrow located at the bottom-right corner of the visible icon.

►**FIGURE 1.29:** An icon with a flyout menu marker

To access the additional functions/options of that icon, do the following:

1. **Click** and **hold** the *bottom-right* area of the icon at the arrow.

This action will launch the flyout menu and make the other functions/options visible.

To choose a different function/option, do the following:

2. While still **holding down** the **left** mouse button, **scroll** down to another icon within the flyout menu and **select** that icon after it is highlighted and **release** the **left** mouse button.

This action will start the command for that icon.

►**FIGURE 1.30:** An executed flyout menu

Clearing a Command

At times you may inadvertently start a wrong command or enter an incorrect prompt within a command. To clear or cancel that command, do the following:

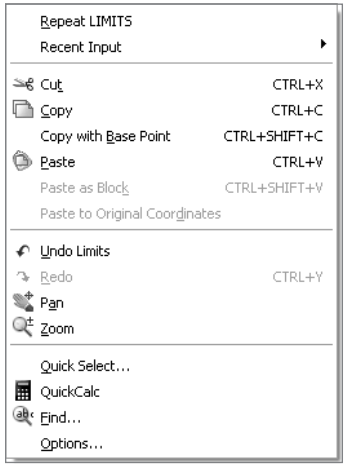
Press the *Esc* key.

This action will stop the running command, enabling you to perform your next command.

Repeating Command Entries

You may need to end commands and restart them again, one after another. Although it is possible to access the command via the command-entry method you find easiest, another way to begin the command is to recall it. To recall past entries or the last command entered (Figure 1.31), do the following:

1. **Right-click** or **press** the *Enter* key. A tooltip window will display, enabling you to recall the last command and give you the option to choose from previously entered commands.
2. **Hover** your cursor over the *option* to select and **click** it with the **left** mouse button.



►**FIGURE 1.31:** The Recall Command Entry tooltip window

Unit Entry

When the drafting units of your drawing are set to architectural, AutoCAD will recognize any numerical entry as inches. For example, to draw a line that is 2′-6″, the command-line entry would be either **2′6″** or **30″**.

Closing an AutoCAD Drawing

To close an AutoCAD drawing using the pulldown menu, do the following:

Click *File* and **select** *Close* with the **left** mouse button.

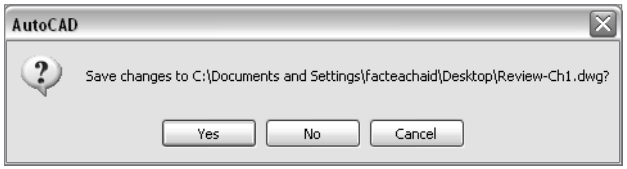
To close an AutoCAD drawing using the command line, do the following:

Type *close* and **press** the *Enter* key on the keyboard, or **right-click** and **select** *Enter* from the tooltip window.

To close a drawing session of AutoCAD, do the following:

1. **Click** the *File* pulldown menu and **select** *Close* with the **left** mouse button. An AutoCAD Save Changes window will launch.
2. To **save** the drawing file, **select** the *Yes* button with the **left** mouse button.

This action will save the changes to your drawing and close the drawing file. (See Figure 1.32.)



►**FIGURE 1.32:** The AutoCAD Save Changes window

AutoCAD Drawing File Extensions

File extensions or suffixes identify a file's format. With AutoCAD there are several file extensions that you may encounter. However, the two most common are `.dwg` and `.bak`.

AutoCAD Drawing File

The information in the AutoCAD Save Changes window shows the path to where your drawing is saved. If you selected the Yes option, your drawing was saved and closed to the location you originally designated. The suffix appended to all AutoCAD drawings is `.dwg`. (See Figure 1.33.)

►**FIGURE 1.33:** The AutoCAD File icon

AutoCAD Backup Drawing File

Backup AutoCAD files are created in the same folder as the original drawing. The suffix that is appended to these drawings is `.bak`. These files can be useful if the original file becomes corrupt. The backup file can be renamed by changing the suffix from `.bak` to `.dwg`. Once done, the drawing file can be opened and used. All of the work completed at the time the drawing was last saved and closed should be available. (See Figure 1.34.)

►**FIGURE 1.34:** The AutoCAD Backup File icon