

Chapter 2

Le Tour de AutoCAD 2006

In This Chapter

- ▶ Touring the AutoCAD 2006 screen
- ▶ Going bar-hopping: title bars, the menu bar, toolbars, and the status bar
- ▶ Dynamically inputting and commanding the command line
- ▶ Discovering the drawing area
- ▶ Making the most of Model and Layout tabs
- ▶ Practicing with palettes
- ▶ Setting system variables and dealing with dialog boxes
- ▶ Using online help

AutoCAD 2006 is a full-fledged citizen of the Windows world, with toolbars, dialog boxes, right-click menus, a multiple-document interface, and all the other trappings of a real Windows program. And it's becoming more and more Windows-like with each release. One of the last weird but essential holdovers from the DOS days is the AutoCAD command line area. The command line is still there, but in AutoCAD 2006, you'll be much less reliant on this "look down here — now look up here" method of interacting with the program.



AutoCAD 2006, like the fanciest Detroit iron, bristles with heads-up display features. The new version's *dynamic input system* puts much of the command line information right under your nose (or at least under your crosshairs). And recently entered data is just a right-click away.

Like the rest of the book, this chapter is written for someone who has used other Windows programs but has little or no experience with AutoCAD. If you're experienced with recent versions of AutoCAD, some of this chapter is old hat for you. You'll have a head start with palettes and some of the new status bar features. If you have used AutoCAD 2004 or 2005, this chapter will help you when it comes to dynamic input, which is a new and strange feature.

AutoCAD Does Windows

Finding your way around AutoCAD 2006 can be an odd experience. You recognize from other Windows applications much of the appearance and workings of the program, such as its toolbars and pull-down menus, which you use for entering commands or changing system settings. But other aspects of the program's appearance — and some of the ways in which you work with it — are quite different from other Windows programs. You can, in many cases, tell the program what to do in at least four ways — pick a toolbar icon, pick from the pull-down menus, type at the keyboard, or pick from the right-click menus — none of which is necessarily the best method to use for every task. The experience is much like that of having to act as several different characters in a play; you're likely to forget your lines (whichever "you" you are at the time!) every now and then.

As with other Windows programs, the menus at the top of the AutoCAD screen enable you to access most of the program's functions and are the easiest-to-remember method of issuing commands. When you want to get real work



Screen test yields high profile

The screen shots and descriptions in this chapter reflect the *default* configuration of AutoCAD — that is, the way the screen looks if you use the standard version of AutoCAD (not a flavored version such as Architectural Desktop) and haven't messed with the display settings. You can change the appearance of the screen with settings on the Display tab of the Options dialog box (choose Tools⇨Options⇨Display) and by dragging toolbars and other screen components.

The main change we've made is to configure the drawing area background to be white instead of black, because the figures in the book show up better that way. On your system, you'll probably want to leave your drawing area background black because the normal range of colors that appears in most drawings is easier to see against a black background.

If you're using a flavored version of AutoCAD, or if someone has already changed your configuration or added a third-party program to your

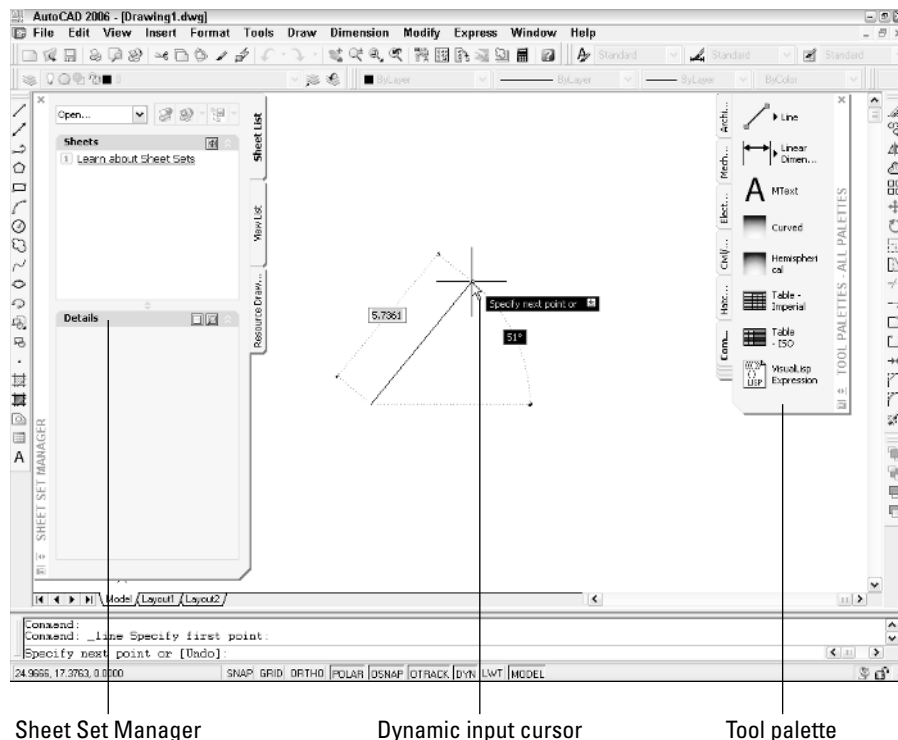
setup, your screen may look different than the figures in this book. You can restore the default configuration — including display settings — with the Reset button on the Options dialog box's Profiles tab. (AutoCAD LT doesn't include the Profiles feature, so LT users are out of luck here.) But before you click the Reset button, consider whether the modified configuration may be useful to someone in the future — like you! If so, first click the Add to List button to create a new profile. Enter a pithy name for the new profile, such as **AutoCAD default**. Then select the new profile that you created, click the Set Current button to make it the current profile, and finally click the Reset button. In the future, you can switch between your modified and default configurations with the Set Current button.

done, you'll need to combine the pull-down menus with other methods — especially entering options at the keyboard or choosing them from the right-click menus. We show you how throughout this book.

And They're Off: AutoCAD's Opening Screen

When you launch AutoCAD after first installing it, the opening screen, shown in Figure 2-1, displays an arrangement of menus, toolbars, palettes, and a new, blank drawing. You can close the Sheet Set Manager and Tool Palettes for now — we describe how to turn them back on and how to use them later in this chapter. (If you installed the Express Tools, as we describe at the end of Chapter 1, you'll also see a flock of small toolbars labeled ET. You can safely close all these and use the Express pull-down menu to access all the Express Tools.)

Figure 2-1:
Heads
up! The
AutoCAD
2006 screen.





If you have a previous version of AutoCAD on your computer, AutoCAD 2006 will display a Migrate Settings dialog box the first time you run the program. Unless you're a competent AutoCAD user who is reading this book to find out about the new features, we recommend that you uncheck all the Migrate Settings options and start fresh.

Those well-washed Windows

As shown in Figure 2-1, much of the AutoCAD screen is standard Windows fare — title bars, a menu bar, toolbars, and a status bar.

A hierarchy of title bars

Like most Windows programs, AutoCAD has a *title bar* at the top of its program window that reminds you which program you're in (not that you'd ever mistake the AutoCAD window for, say, Microsoft Word!).

- ✓ At the right side of the title bar is the standard set of three Windows control buttons: Minimize, Maximize/Restore, and Close.
- ✓ Each drawing window within the AutoCAD program window has its own title bar. You use the control buttons on a drawing window's title bar to minimize, maximize/un-maximize, or close that drawing, not the entire AutoCAD program.



As in other Windows programs, if you maximize a drawing's window, it expands to fill the entire drawing area. (AutoCAD 2006 starts with the drawing maximized in this way.) As shown in Figure 2-1, the drawing's control buttons move onto the menu bar, below the control buttons for the AutoCAD program window; the drawing's name appears in the AutoCAD title bar. To un-maximize the drawing so that you can see any other drawings that you have open, click the lower un-maximize button. The result is as shown in Figure 2-2: a separate title bar for each drawing with the name and controls for that drawing.



Hot-wiring the menu bar

Some standard tips and tricks for Windows are especially useful in AutoCAD. Control-key shortcuts for the most popular functions — Ctrl+S to save, Ctrl+O to open a file, and Ctrl+P to print — work the same way in AutoCAD as in most other Windows programs. Use them!

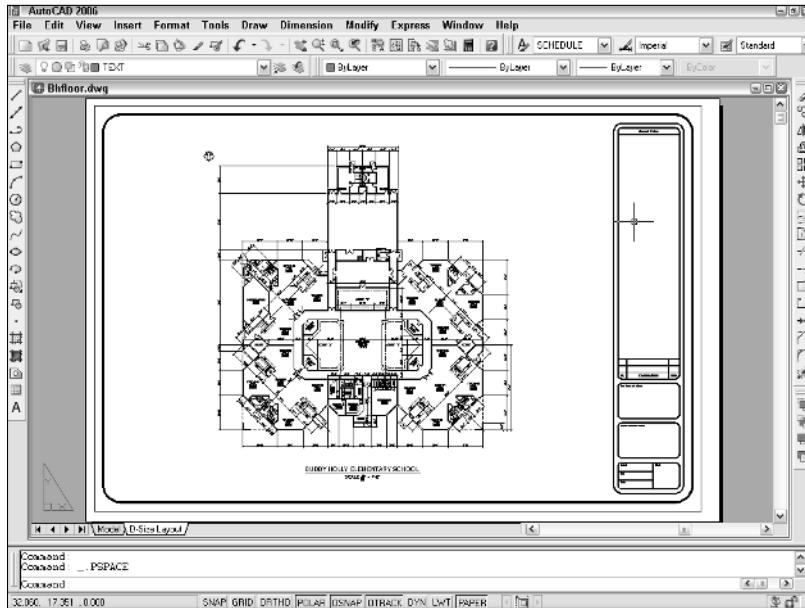
Also worth exploring are the Alt-key shortcuts, which are available for all menu choices, not

just the most popular ones. To fly around the menus, just press and hold the Alt key and then press the letters on your keyboard that correspond to the underlined letters on the menu bar and in the menu choices. To bring up the SAVEAS command, for example, just press and hold the Alt key, press F for File, and then press A for Save As.

Making choices from the menu bar

The *menu bar* contains the names of all the primary menus in your version of AutoCAD. As with any program that's new to you, it's worth spending a few minutes perusing the menus in order to familiarize yourself with the commands and their arrangement. (If your menu bar doesn't include the Express menu, see the end of Chapter 1 for installation instructions.)

Figure 2-2:
The
AutoCAD
screen
with the
drawing un-
maximized.



Cruising the toolbars

As in other Windows programs, the toolbars in AutoCAD provide rapid access to the most commonly used AutoCAD commands. AutoCAD 2006 ships with toolbars in this default arrangement (as shown in Figure 2-3):

- ✓ **Standard toolbar:** Located on top, just below the menu bar; file management and other common Windows functions, plus some specialized AutoCAD stuff such as zooming and panning.
- ✓ **Styles toolbar:** To the right of the Standard toolbar; analogous to the left part of the Formatting toolbar in Microsoft programs, but formatting of AutoCAD's text, dimension, and table styles. Chapters 9 and 10 cover these features.
- ✓ **Layers toolbar:** Beneath the Standard toolbar; commands and a drop-down list for manipulating layers, which are AutoCAD's fundamental tools for organizing and formatting objects. Chapter 5 contains the layer lowdown.

- ✓ **Properties toolbar:** To the right of the Layers toolbar; analogous to the right part of the Formatting toolbar in Microsoft programs, but formatting of AutoCAD's properties, such as colors, linetypes, and lineweights. See Chapter 5 when you're ready to play with AutoCAD's object properties.
- ✓ **Draw toolbar:** Vertically down the far-left edge of the screen; the most commonly used commands from the Draw menu. Chapter 6 covers most of the items on this toolbar.
- ✓ **Modify toolbar:** Vertically down the far-right edge of the screen; the most commonly used commands from the Modify menu. Chapter 7 shows you how to use almost everything on this toolbar.
- ✓ **Draw Order toolbar:** Beneath the Modify toolbar; commands for controlling which objects appear on top of which other objects. Chapter 13 mentions these features.

You can rearrange, open, and close toolbars as in other Windows programs:

- ✓ To move a toolbar, point to its border (the double-line control handle at the leading edge of the toolbar is the easiest part to grab), click, and drag.
- ✓ To open or close toolbars, right-click on any toolbar button and choose from the list of available toolbars, as shown in Figure 2-3.

The AutoCAD screen in Figure 2-3 shows the default toolbar arrangement, which works fine for most people. Feel free to close the Draw Order toolbar; you aren't likely to use its features frequently. You may want to turn on a couple of additional toolbars, such as Object Snap and Dimension, as you discover and make use of additional features. Throughout this book, we point out when a particular toolbar may be useful.

The toolbars that ET AutoCAD

If you've installed the Express Tools, you'll also see a flock of Express Tools toolbars, whose labels begin with "ET:" floating over the drawing area. These four small toolbars collect some of the most popular Express Tools. You'll probably want to close most of these or at least dock any favorites along the margin of the AutoCAD window.

The Express Tools are extensions to AutoCAD, not part of the core program, so turning the toolbars on again after you've turned them off

requires one additional step. Right-click in an empty part of one of the toolbar areas. A right-click menu displays the names of the two loaded menu files, ACAD and EXPRESS. The ACAD list displays the names of all the regular toolbars: Draw, Standard, and so forth. The EXPRESS list displays the names of the four Express Tools toolbars; click the check boxes next to the names in order to toggle each toolbar on or off.

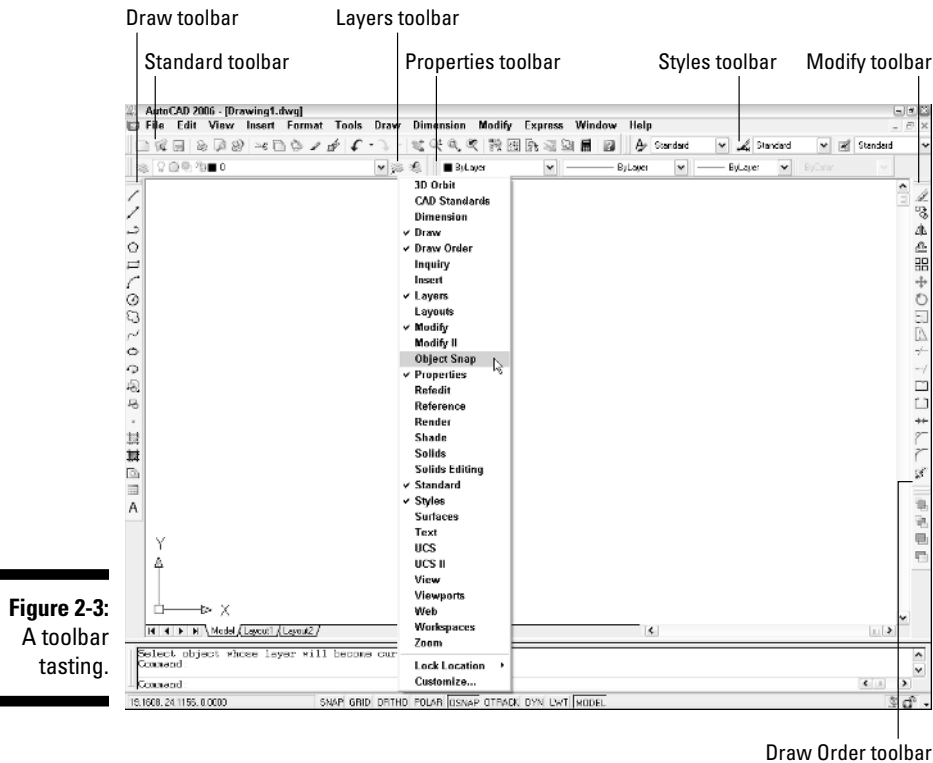


Figure 2-3:
A toolbar
tasting.



Toolbars and palettes can become hard to manage with a half-dozen or more open. AutoCAD 2006 lets you lock toolbars and palettes in place — just click the padlock on the far right of the status bar (see Figure 2-4) to keep your toolbars and palettes parked.



If you're not satisfied with just rearranging the stock AutoCAD toolbars, you can customize their contents or even create new ones. The procedures are beyond the scope of this book; they involve bouncing among the Interfaces, Commands, Toolbars, and Properties areas in the Customize User Interface dialog box in not entirely intuitive ways. Resist slicing and dicing the stock AutoCAD toolbars until you're at least somewhat familiar with them. If you want to get creative thereafter, go to the Contents tab of the AutoCAD 2006 online help and choose Customization Guide→Basic Customization→Customize the User Interface→Customize Toolbars.



AutoCAD toolbar buttons provide *tooltips*, those short text descriptions that appear in little yellow boxes when you pause the cursor over a toolbar button. A longer description of the icon's function appears in the status bar at the bottom of the screen.

Looking for Mr. Status Bar

The *status bar* appears at the bottom of the AutoCAD screen, as shown in Figure 2-4. The status bar displays and allows you to change several important settings that affect how you draw and edit in the current drawing. Some of these settings won't make complete sense until you've used the AutoCAD commands that they influence, but here's a brief description, with pointers to detailed descriptions of how to use each setting elsewhere in this book:

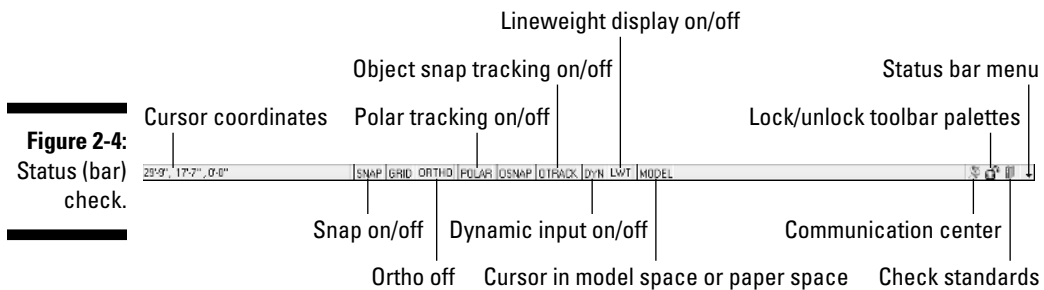


Figure 2-4:
Status (bar)
check.

- ✓ **Coordinates of the cursor:** The *cursor coordinates* readout displays the current X,Y,Z location of the cursor in the drawing area, with respect to the origin point (whose coordinates are 0,0,0). It's a bit like having a GPS (Global Positioning System) device in your drawing. Chapter 5 describes AutoCAD's coordinate conventions and how to use this area of the status bar.

If the coordinates in the lower-left corner of the screen are grayed out, then coordinate tracking is turned off. Click the coordinates so that they appear in dark lettering that changes when you move the cursor in the drawing area.

If dynamic input is enabled, the tooltip at the cursor also displays the current X,Y,Z location of the cursor. This constantly active display is not affected by changes to coordinate tracking in the status bar.

- ✓ **SNAP, GRID, and ORTHO mode buttons:** These three buttons control three of AutoCAD's tools for ensuring precision drawing and editing:
 - **Snap** constrains the cursor to regularly spaced hot spots, enabling you to draw objects a fixed distance apart more easily.
 - **Grid** displays a series of regularly spaced dots, which serve as a distance reference.
 - **Ortho** constrains the cursor to horizontal and vertical relative movement, which makes drawing orthogonal (straight horizontal and vertical) lines easy.



See Chapter 4 for instructions on how to configure these modes and Chapter 5 for information about why, when, and how to use them in actual drawing operations.

- ✓ **POLAR tracking mode button:** Polar tracking causes the cursor to prefer certain angles when you draw and edit objects. By default, the preferred angles are multiples of 90 degrees, but you can specify other angle increments, such as 45 or 30 degrees. See Chapter 5 for instructions to specify the polar tracking angles that you prefer. Clicking the POLAR button toggles polar tracking on or off. Ortho and polar tracking are mutually exclusive — turning on one mode disables the other.

- ✓ **Running Object Snap (OSNAP) and Object Snap Tracking (OTRACK) buttons:** *Object snap* is another AutoCAD tool for ensuring precision drawing and editing. You use object snaps to grab points on existing objects — for example, the endpoint of a line or the center of a circle.

- When you turn on *running object snap*, AutoCAD continues to hunt for object snap points. Chapter 5 contains detailed instructions on how to use this feature.
- When you turn on *object snap tracking*, AutoCAD hunts in a more sophisticated way for points that are derived from object snap points. Chapter 5 briefly describes this advanced feature.

AutoCAD LT doesn't include the object snap tracking feature, so you won't see an OTRACK button on its status bar.



- ✓ **Dynamic Input (DYN) button:** *Dynamic input* displays commands, options, prompts, and user input adjacent to the crosshairs in the drawing area and enables you to keep focused on what you're drawing. In addition, the dynamic input area displays what you type in response to prompts. (If you get frustrated with this system, mind you don't become a dynamic curser yourself!)
- ✓ **Lineweight (LWT) display mode button:** One of the properties that you can assign to objects in AutoCAD is *lineweight* — the thickness that lines appear when you plot the drawing. This button controls whether you see the lineweights on the screen. (This button doesn't control whether lineweights appear on plots; that's a separate setting in the Plot dialog box.) Chapter 5 gives you the skinny (and the wide) on lineweights.
- ✓ **MODEL/PAPER space button:** As we describe in the section, "Down the main stretch: The drawing area," later in this chapter, the drawing area is composed of overlapping tabbed areas labeled Model, Layout1, and Layout2 by default. The Model tab displays a part of the drawing called *model space*, where you create most of your drawing. Each of the remaining tabs displays a *paper space layout*, where you can compose a plotable view with a title block. A completed layout will include one or more *viewports*, which reveal some or all the objects in model space at a particular scale.

The MODEL/PAPER status bar button (not to be confused with the Model *tab*) comes into play after you click one of the paper space layout tabs. The MODEL/PAPER button provides a means for moving the cursor between model and paper space while remaining in the particular layout.

- When the MODEL/PAPER button says MODEL, drawing and editing operations take place in model space, inside a viewport.
- When the button says PAPER, drawing and editing operations take place in paper space on the current layout.

Don't worry if you find model space and paper space a little disorienting at first. The paper space layout setup information in Chapter 4 and plotting instructions in Chapter 12 will help you get your bearings and navigate with confidence.

- ✓ **Maximize/Minimize Viewport button** (paper space layouts only): When you're looking at one of the Layout tabs instead of the Model tab, the status bar displays an additional Maximize Viewport button. Click this button to expand the current paper space viewport so that it fills the entire drawing area. Click the button — now called Minimize Viewport — again to restore the viewport to its normal size. (Chapter 4 describes viewports.)
- ✓ **Communication Center:** This button opens a dialog box containing recent AutoCAD-related headlines that Autodesk thinks you may find useful. The headlines are grouped into categories called *channels*: Live Update Maintenance Patches, Articles and Tips, Product Support Information, and so on. Each headline is a link to a Web page with more information, such as how to download a software update or fix a problem. Click the Settings button to select channels you see in the Communication Center window.
- ✓ **Lock/Unlock Toolbar Palette Positions:** “Now, where did I leave that Properties palette?” You'll never have to ask yourself again — AutoCAD 2006 lets you lock toolbars or palettes (which for some reason they've started calling windows) in position so you'll always know where they are.
- ✓ **Manage Xrefs:** You won't see this combination button and notification symbol until you open a drawing that contains xrefs (external DWG files that are incorporated into the current drawing). Chapter 13 tells you how to use xrefs and what the Manage Xrefs button does.
- ✓ **Associated Standards File:** You'll see this button if you've enabled CAD standards checking and configured a drawing standards (DWS) file. Clicking this button displays the Check Standards dialog box. Chapter 15 tells you how to set up standards checking.
- ✓ **Status Bar Menu:** When you click the easy-to-miss downward-pointing arrow near the right edge of the status bar, you open a menu with options for toggling off or on each status bar button. Now you can decorate your status bar to your taste.





You can open dialog boxes for configuring many of the status bar button functions by right-clicking the status bar button and choosing Settings. Chapters 4 and 5 give you specific guidance about when and how to change these settings.



A button's appearance shows whether the setting is turned on or off. Depressed, or down, means on; raised, or up, means off. If you're unclear whether a setting is on or off, click its button; its mode will change and the new setting will be reflected on the command line — `<Osnap off>`, for example. Click again to restore the previous setting.

A smoother ride: Dynamic input

One of the tasks faced by every AutoCAD instructor is the frequent need to badger students to “Watch The Command Line!” because the command line can be confusing for people who are new to CAD and computers. To anyone familiar with any other Windows graphic program, the command line is really tough to take — a throwback to an earlier time, when the knuckles of computer-aided drafters dragged on the ground. The challenge for experienced AutoCAD users now is going to be “Stop Watching The Command Line!”

When dynamic input is enabled, the cursor takes on some extra features:

- ✓ The coordinates of the current pointer location are always visible at the cursor.
- ✓ Typed commands appear in the tooltip adjacent to the cursor.
- ✓ When a command is started, you can display options by pressing the down-arrow key on the keyboard.
- ✓ Values that you type appear in the tooltip, and the dynamic input system displays dimensions when you're drawing things or moving them around (refer to Figure 2-1).

Dynamic input is enabled by default, so it's going to be one of the first things you notice when you get behind the wheel.

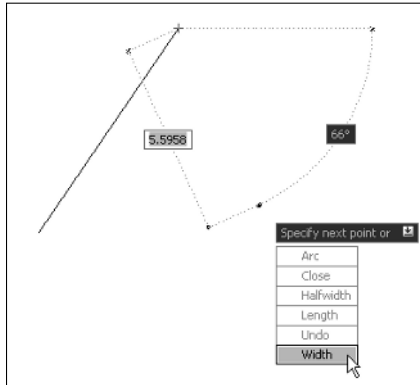
The two elements of the dynamic input system are

- ✓ **Dynamic Pointer:** A coordinate display appears adjacent to the cursor and updates as you move the pointer. Command options and input appear in the pointer tooltip.
- ✓ **Dynamic Dimensions:** Distance and angular dimensions display and constantly update as you move the cursor around the screen.



If there's not enough room at the cursor to show all command options, the dynamic input tooltip shows a tiny down-arrow icon. Press the down-arrow key on your keyboard to see more options (see Figure 2-5).

Figure 2-5:
Dynamic
cursor with
all the
options.



The new DYN status bar button controls AutoCAD 2006's dynamic input system. You can toggle off dynamic input by clicking this button, but we recommend you use it — you won't have to keep looking down at the command line nearly so often!

Dynamic input looks like a great new feature, but it takes some getting used to. For newcomers to AutoCAD, it's still a confusing array of information to deal with. For experienced users, the most disconcerting thing is to see the command line remain blank as you type commands.

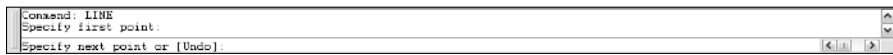
Let your fingers do the talking: The command line area

If the title bars, menu bar, status bar, and dynamic input tooltips are the Windows equivalent of comfort food — familiar, nourishing, and unthreatening — then the command line area, shown in Figure 2-6, must be the steak tartare or blood sausage of the AutoCAD screen feast. It looks weird, turns the stomachs of newcomers, and delights AutoCAD aficionados. Despite the promise of AutoCAD 2006's heads-up dynamic input, for now at least, the hard truth is that you have to come to like — or at least tolerate — the command line if you want to become at all comfortable using AutoCAD.

You should cotton on and cozy up to the command line because the command line is still AutoCAD's primary communications conduit with you.

AutoCAD sometimes displays prompts, warnings, and error messages in the command line area that dynamic input doesn't show — there simply isn't room in the dynamic input tooltip to show as much information as you get at the command line. True, when using dynamic input, you can press the down-arrow key to see more options, but then which is less efficient — moving your eyes down the screen to glance at the command line, or taking your eyes right off the screen to find the down-arrow key on your keyboard?

Figure 2-6:
Obey the
command
line.



The key (board) to AutoCAD success

Despite (or is it because of?) AutoCAD's long heritage as the most successful microcomputer CAD software, newcomers are still astonished at the amount of typing they have to do. Some more modern programs may have much less dependency on the keyboard than AutoCAD, but as you get used to it, you'll find that no other input method gives you as much flexibility as pounding the ivories . . . oops, wrong keyboard!

Typing at your *computer's* keyboard is an efficient way to run some commands and the only way to run a few others. Instead of clicking a toolbar button or a menu choice, you can start a command by typing its command name and then pressing the Enter key. Even better, for most common commands, you can type the keyboard shortcut for a command name and press Enter. Most of the keyboard shortcuts for command names are just one or two letters — for example, L for the LINE command and CP for the COPY command. Most people who discover how to use the shortcuts for the commands that they run most frequently find that their AutoCAD productivity improves noticeably. Even if you're not worried about increasing your productivity with this technique, there are some commands that aren't on the toolbars or pull-down menus. If you want to run those commands, you have to type them!

You also have to use the keyboard to feed some kinds of data to AutoCAD — you still need to type coordinates, for example. However, dynamic input has reduced many different kinds of typed data input to just a few.

After you've started a command — whether from a toolbar, from a menu, or by typing — the dynamic input cursor and the command line are where AutoCAD prompts you with options for that command. You activate one of these options by typing the uppercase letter(s) in the option and pressing Enter.



In many cases, you can activate a command's options by right-clicking in the drawing area and choosing the desired option from the menu that appears, instead of by typing the letter(s) for the option and pressing Enter.

The following sequence demonstrates how you use the keyboard to run commands, and view and select options. Watch the command line and the dynamic input tooltip (that is, the cursor), and pay attention to messages from AutoCAD.

1. Type L and press Enter.

AutoCAD starts the LINE command and displays the following prompt in both the dynamic cursor and the command line area:

```
LINE Specify first point:
```

2. Click a point anywhere in the drawing area.

The cursor prompts you to specify the next point, and the command line prompt changes to:

```
Specify next point or [Undo]:
```

3. Click another point anywhere in the drawing area.

AutoCAD draws the first line segment.

4. Click a third point anywhere in the drawing area.

AutoCAD draws the second line segment. The command line prompt changes to:

```
Specify next point or [Close/Undo]:
```



AutoCAD's dynamic cursor prompt ends in mid-sentence (AutoCAD has always been grammatically challenged), but its arrow icon indicates that there's more. Press the down-arrow key on your keyboard to see the hidden items.



AutoCAD's command line always displays command options in brackets. In this case, the Undo option appears in brackets. To activate the option, type the letter(s) shown in uppercase and press Enter. (You can type the option letter(s) in lowercase or uppercase.)

The command line now displays two options, Close and Undo, separated by a slash.

5. Type U and press Enter.

AutoCAD undoes the second line segment.

6. Type 3,2 (without any spaces) and press Enter.

AutoCAD draws a new line segment to the point whose X coordinate is 3 and Y coordinate is 2.

7. Click several more points anywhere in the drawing area.

AutoCAD draws additional line segments.

8. Type X and press Enter.

X isn't a valid option of the Line command, so AutoCAD displays an error message at both command line and dynamic cursor and prompts you again for another point:

```
Point or option keyword required.  
Specify next point or [Close/Undo]:
```



Option keyword is programmer jargon for the letter(s) shown in uppercase that you type to activate a command option. This error message is AutoCAD's way of saying "I don't understand what you mean by typing X. Either specify a point or type a letter that I do understand."

9. Type C and press Enter.

AutoCAD draws a final line segment, which creates a closed figure, and ends the LINE command. The naked command prompt returns, indicating that AutoCAD is ready for the next command:

```
Command:
```

10. Press the F2 key.

AutoCAD displays the AutoCAD Text Window, which is simply an enlarged, scrollable version of the command line area, as shown in Figure 2-7.



The normal three-line command line area usually shows you what you need to see, but occasionally you'll want to review a larger chunk of command line history. ("What was AutoCAD trying to tell me a minute ago?!")

11. Press the F2 key again.

AutoCAD closes the AutoCAD Text Window.

AutoCAD is no *vin ordinaire*

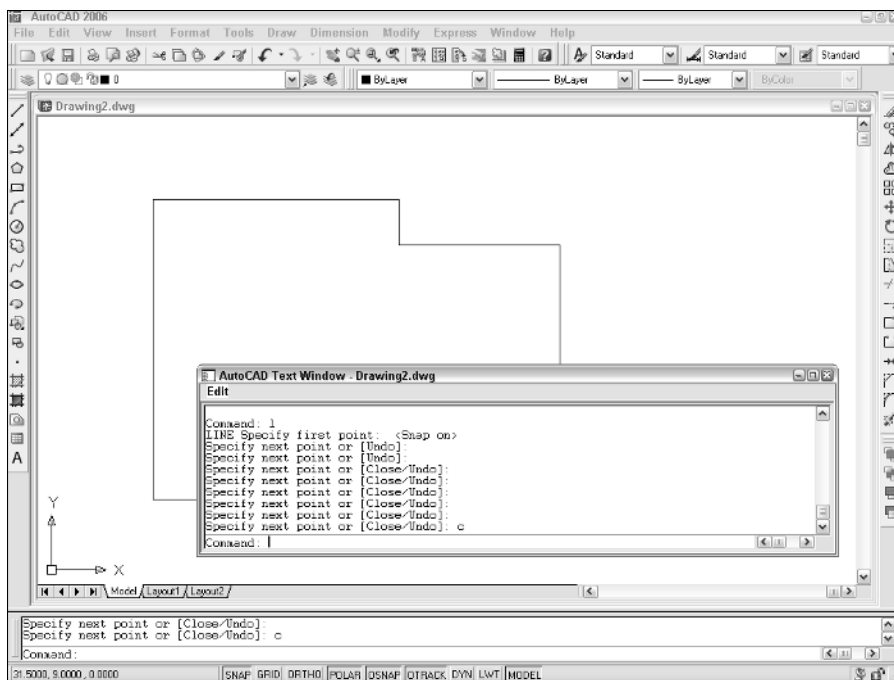
The back and forth needed to get AutoCAD to draw and complete a line is a great example of AutoCAD's power — and its power to confuse new users. It's kind of like a wine that tastes a bit harsh initially, but that ages better than something more immediately drinkable.

In other programs, if you want to draw a line, you just draw it. In AutoCAD, you have to press Enter one extra time when you're done just to tell AutoCAD you really are finished drawing.

But the fact that the Line command remains active after you draw the first line segment makes it much faster to draw complicated, multisegment lines, which is a common activity in a complex drawing.

This is just one example of how AutoCAD favors ease of use for power users doing complex drawings over ease of mastery for beginners, who frequently forget to hit Enter that extra time to close out a command.

Figure 2-7:
My how
you've
grown: F2
expands the
command
line area
to a com-
mand text
window.



Here are a few other tips and tricks for effective keyboarding:

- ✓ **Use the Esc key to bail out of the current operation.** There will be times when you get confused about what you're doing in AutoCAD and/or what you're seeing in the command line area or the dynamic cursor. If you need to bail out of the current operation, just press the Esc key one or more times until you see the naked command prompt — `Command:` at the bottom of the command line area, with nothing after it. As in most other Windows programs, Esc is the cancel key. Unlike many other Windows programs, AutoCAD keeps you well informed of whether an operation is in progress. The naked command prompt indicates that AutoCAD is in a quiescent state, waiting for your next command.
- ✓ **Press Enter to accept the default action.** Some command prompts include a default action in angled brackets. For example, the first prompt of the POLYgon command is

Enter number of sides <4>:

The default here is four sides, and you can accept it simply by pressing the Enter key. (That is, you don't have to type 4 first.)

AutoCAD uses two kinds of brackets when it prompts:

- Command options appear in regular brackets: `[Close/Undo]`.



To activate a command option, type the letter(s) that appear in uppercase and then press Enter. The dynamic cursor does not display options in brackets; instead, you press the down-arrow key to display additional command options in rows next to the cursor (refer to Figure 2-5).

- A Default value or option appears in angled brackets: <>.

To choose the default value or option, simply press Enter. Default values in angled brackets appear in both the dynamic cursor and the command line prompts.

- ✓ **Observe the command line.** You'll discover a lot about how to use the command line simply by watching it after each action that you take. When you click a toolbar button or menu choice, AutoCAD types the name of the command automatically, and displays it in the dynamic cursor and at the command line. If you're watching the command line, you'll absorb the command names more-or-less naturally.

When AutoCAD types commands automatically in response to your toolbar and menu clicks, it usually adds one or two extra characters to the front of the command name.

- AutoCAD usually puts an underscore in front of the command name (for example, `_LINE` instead of `LINE`). The underscore is an Autodesk programmers' trick that enables non-English versions of AutoCAD to understand the English command names that are embedded in the menus.
- AutoCAD sometimes puts an apostrophe in front of the command name and any underscore (for example, `'_ZOOM` instead of `ZOOM`). The apostrophe indicates a *transparent* command; you can run the command in the middle of another command without canceling the first command. For example, you can start the `LINE` command, run the `ZOOM` command transparently, and then pick up where you left off with the `LINE` command.

- ✓ **Leave the command line in the default configuration initially.** The command line area, like most other parts of the AutoCAD screen, is resizable and relocateable. The default location (docked at the bottom of the AutoCAD screen) and size (three lines deep) work well for most people. Resist the temptation to mess with the command line area's appearance — at least until you're comfortable with how to use the command line.
- ✓ **Right-click in the command line area for options.** If you right-click in the command line area, you'll see a menu with some useful choices, including Recent Commands — the last six commands that you ran.
- ✓ **Press the up- and down-arrow keys to cycle through the stack of commands that you've typed recently.** This is another handy way to recall and rerun a command. Press the left- and right-arrow keys to edit the command line text that you've typed or recalled.



Down the main stretch: The drawing area

After all these screen hors d'oeuvres, you're probably getting hungry for the main course — the AutoCAD drawing area. This is where you do your drawing, of course. In the course of creating drawings, you click points to specify locations and distances, click objects to select them for editing, and zoom and pan to get a better view of what you're working on.

Most of this book shows you how to interact with the drawing area, but you should know a few things up front.

The Model and Layout tabs (Model and paper space)

One of the initially disorienting things about AutoCAD is that finished drawings can be composed of objects drawn in different *spaces*, which AutoCAD indicates with the tabs along the bottom of the drawing area (Model, Layout1, and Layout2 by default).

- ✓ *Model space* is where you create and modify the objects that represent things in the real world — walls, widgets, waterways, or whatever.
- ✓ *Paper space* is where you create particular views of these objects for plotting, usually with a title block around them. Paper space comprises one or more *layouts*, each of which can contain a different arrangement of model space views and different title block information.

When you click the Model tab in the drawing area, you see pure, unadulterated model space, as shown in Figure 2-8. When you click one of the paper space layout tabs (Layout1 or Layout2, unless someone has renamed or added to them), you see a paper space layout, as shown in Figure 2-9. A completed layout usually includes one or more *viewports*, which are windows that display all or part of model space at a particular scale. A layout also usually includes a title block or other objects that exist only in the layout and don't appear when you click the Model tab. (Think of the viewport as a window looking into model space and the title block as a frame around the window.) Thus, a layout displays model space and paper space objects together, and AutoCAD lets you draw and edit objects in either space. See Chapter 4 for information about creating paper space layouts and Chapter 12 for the low-down on plotting them.

As we describe in the “Looking for Mr. Status Bar” section in this chapter, after you've clicked one of the layout tabs, the status bar's MODEL/PAPER button moves the cursor between model and paper space while remaining in the particular layout. (As shown in Figures 2-8 and 2-9, the orientation icon at the lower-left corner of the AutoCAD drawing area changes between an X-Y axis for model space and a drafting triangle for paper space as an additional reminder of which space the cursor currently resides in.) Chapter 4 describes the consequences of changing the MODEL/PAPER setting and advises you on how to use it.

Figure 2-8:
Our building
model
lounging
around in
model
space.

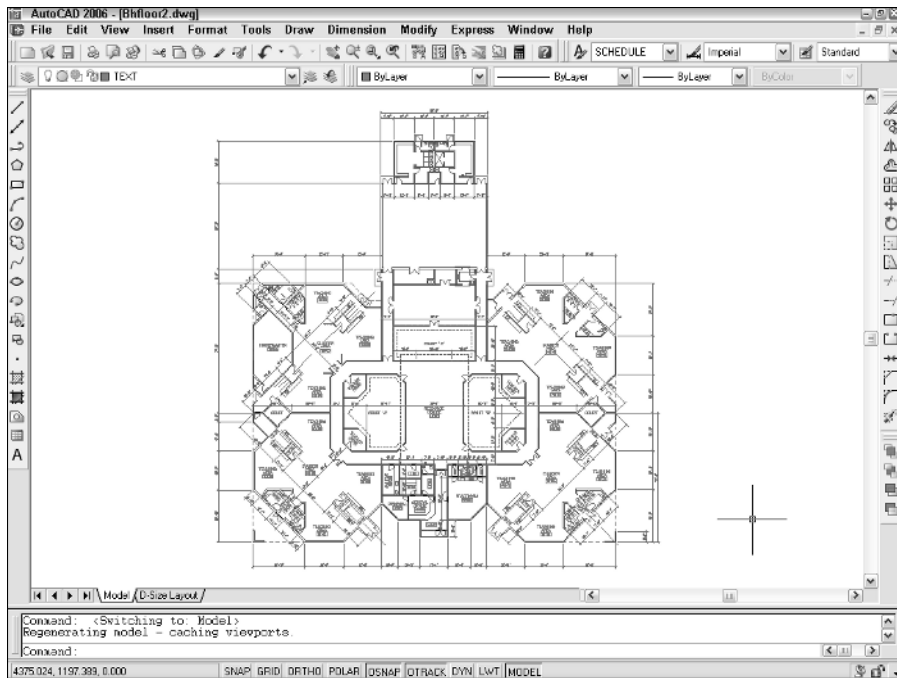
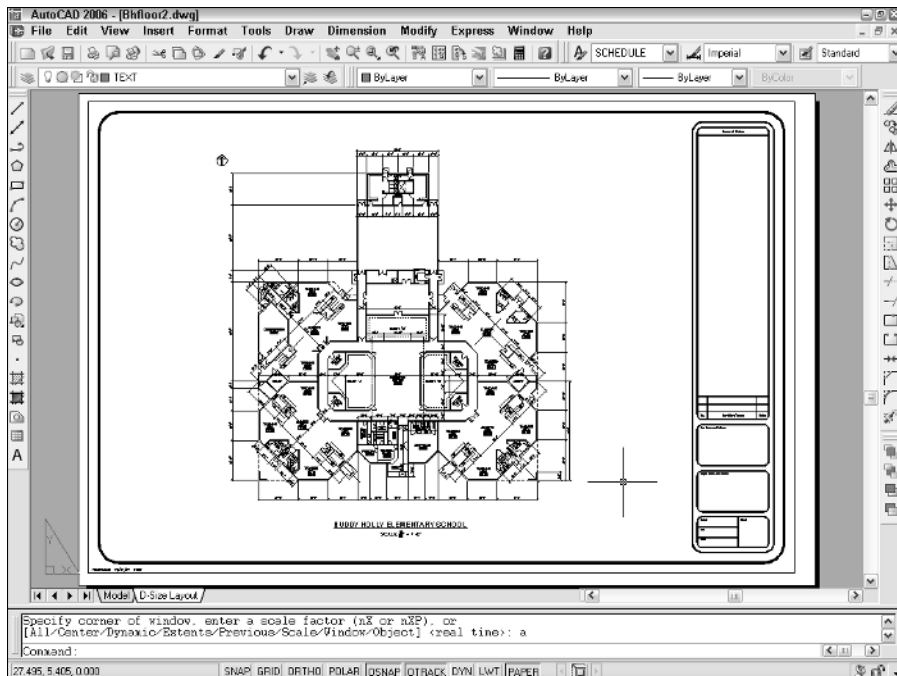


Figure 2-9:
Freshly laid
out in paper
space.





This back-and-forth with the MODEL/PAPER button or double-clicking is necessary only when you're drawing things while viewing one of the paper space layouts or adjusting the view of the drawing objects within the viewport. In practice, you probably won't draw very much using this method. Instead, you'll do most of your drawing on the Model tab and, after you've set up a paper space layout, click its layout tab only when you want to plot.

Drawing on the drawing area

Here are a few other things to know about the AutoCAD drawing area:

- ✓ Efficient, confident use of AutoCAD requires that you continually glance from the drawing area to the command line area (to see those all-important prompts!) and then back up to the drawing area. This sequence is not a natural reflex for most people, and that's why the dynamic input tooltip cursor was introduced in AutoCAD 2006. But you still get information from the command line that you don't get anywhere else. Get in the habit of looking at the command line after each action that you take, whether picking something on a toolbar, on a menu, or in the drawing area.
- ✓ Clicking at random in the drawing area is not quite as harmless in AutoCAD as it is in many other Windows programs. When you click in the AutoCAD drawing area, you're almost always performing some action — usually specifying a point or selecting objects for editing. Feel free to experiment, but look at the command line after each click. If you get confused, press the Esc key a couple of times to clear the current operation and return to the naked command prompt.
- ✓ In most cases, you can right-click in the drawing area to display a menu with some options for the current situation.

Keeping Tabs on Palettes

Last time around (the pioneers call it *AutoCAD 2005*), two features called Properties and DesignCenter, a toolbarlike interface called Tool Palettes, and the new Sheet Set Manager appeared in spiffy modeless dialog boxes, or *palettes*. This time, there are seven, including a brand new feature.

- ✓ **Properties and DesignCenter:** Used to control object properties and named objects (layers, blocks, and so on), respectively. Chapter 5 shows you how.
- ✓ **Tool Palettes:** Resembles a stack of painter's palettes, except that each palette holds *content* (drawing symbols and hatch patterns) and/or *commands* (not regular AutoCAD commands — what would be the point? — but macros that make commands do specific things) instead of paints. Chapters 11, 13, and 15 help you unlock your inner Tool Palette artistry.



- ✓ **Sheet Set Manager:** Provides tools for managing all of a project's drawings as a *sheet set*. Chapter 14 gives you the lowdown on why you might want to use sheet sets and how to do so. (AutoCAD LT does not support sheet sets.)
- ✓ **Markup Set Manager:** Displays design and drafting review comments from users of Autodesk DWF Composer. For more information on markup sets, see the online help.
- ✓ **Info Palette:** Autodesk's version of Mr Paperclip, the Info Palette pops up with information about what you're doing every step of the way.
- ✓ **QuickCalc:** A handy pushbutton scientific calculator. You'll know if you need this.

You toggle these palettes on and off by clicking their respective buttons near the right end of the Standard toolbar, or by pressing Ctrl+1 (Properties), Ctrl+2 (DesignCenter), Ctrl+3 (Tool Palettes), Ctrl+4 (Sheet Set Manager), Ctrl+5 (Info Palette), Ctrl+7 (Markup Set Manager), or Ctrl+8 (QuickCalc). Figure 2-10 shows some of these palettes toggled on.



Modeless is just a fancy way of saying that these dialog boxes don't take over AutoCAD in the way that *modal* dialog boxes do. Modal dialog boxes demand your undivided attention. You enter values, click buttons, or whatever, and then click the OK or Cancel button to close the dialog box. While the modal dialog box is open, you can't do anything else in AutoCAD. A modeless dialog box, on the other hand, can remain open while you execute other commands that have nothing to do with the dialog box. You return to the modeless dialog box when or if you need its features.

Manipulating AutoCAD modeless dialog boxes — or *palettes* — is similar to manipulating a regular Windows dialog box, except that the title bar is along the side instead of at the top. Puts a whole new slant on things, doesn't it?

In other words, you click and drag the title strip along the side to move the palette. If you experiment with the control buttons at the bottom of this strip (or right-click anywhere on the strip), you'll quickly get the hang of what you can do with these palettes. In particular, turning on the auto-hide feature causes the dialog box to "roll up" into the strip so that it's not taking up much screen space. When you point the cursor at the strip, the palette unfurls again.



Another cool feature — for the Tool Palettes but not the Properties and DesignCenter palettes — is *transparency*. Right-click the Tool Palettes' title strip and choose Transparency to control this feature. With transparency turned on, you can see your drawing objects behind a faded version of the Tool Palettes. If you combine transparency with auto-hide, you end up with Tool Palettes that have a low impact on your drawing area. And if you're bothered by the amount of screen space taken by the command line area, you can make it transparent, too: Undock it, right-click the title bar and turn off Allow Docking, and then right-click again and choose Transparency. After you've set the transparency to your taste, click and drag the command line area to where you want it.

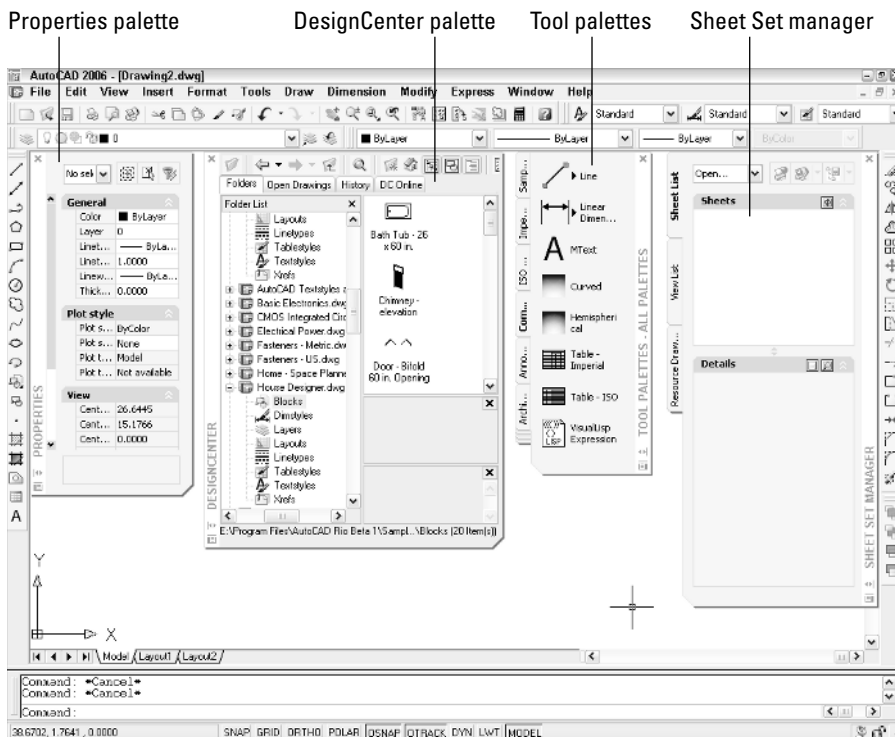


Figure 2-10:
A modeless
menagerie.

Driving Miss AutoCAD

Knowing how to read the command line, as described in the section, “Let your fingers do the talking: The command line area,” is one of the secrets of becoming a competent AutoCAD user. In reading about and using AutoCAD, you encounter two additional topics frequently: *system variables*, which are AutoCAD’s basic control levers, and *dialog boxes*, many of which put a friendlier face on the system variables.

Under the hood: System variables

System variables are settings that AutoCAD checks before it decides how to do something. If you set the system variable SAVETIME to 10, AutoCAD automatically saves your drawing file every ten minutes; if you set SAVETIME to 60, the time between saves is one hour. Hundreds of system variables control AutoCAD’s operations.

Of these hundreds of system variables in AutoCAD, 70 system variables control dimensioning alone. (*Dimensioning* is the process of labeling objects with their lengths, angles, or special notes. Different professions have different standards for presenting dimensions on their drawings. Using dimensions is described in detail in Chapter 10.)

To change the value of a system variable, just type its name at the AutoCAD command prompt and press Enter. AutoCAD will display the current value of the system variable setting and prompt you for a new value. Press Enter alone to keep the existing setting, or type a value and press Enter to change the setting.



The procedure for entering a system variable is exactly the same as for entering a command name — type the name and press Enter. The only difference is what happens afterward:

- ✓ A system variable changes a setting.
- ✓ A command usually adds objects to the drawing, modifies objects, or changes your view of the drawing.

Being able to change system variables by typing their names is a boon to power users and occasionally a necessity for everybody else. The only problem is finding or remembering what the names are. In most cases, you'll be told what system variable name you need to type — by us in this book or by the local AutoCAD guru in your office.



To see a listing of all the system variables in AutoCAD and their current settings, use the following steps:

1. Type SETvar and press Enter.

AutoCAD prompts you to type the name of a system variable (if you want to view or change just one) or question mark (if you want to see the names and current settings of more than one):

```
Enter variable name or [?]
```

2. Type ? (question mark) and press Enter.

AutoCAD asks which system variables to list:

```
Enter variable(s) to list <*>:
```

3. Press Enter to accept the default asterisk (which means “list all system variables”).

AutoCAD opens a text window and displays the first group of system variables and their settings:

```

ACADLSPASDOC      0
ACADPREFIX        "C:\Documents and..." (read only)
ACADVER           "16.2 (LMS Tech)" (read only)
ACISOUTVER        70
AFLAGS            0
ANGBASE           0
ANGDIR            0
APBOX             0
APERTURE          10
AREA              0.0000 (read only)
ATTDIA            0
ATTMODE           1
ATTREQ            1
AUDITCTL          0
AUNITS            0
AUPREC            0
AUTOSNAP          63
BACKGROUNDPLOT    2
BACKZ             0.0000 (read only)
BACTIONCOLOR      "7"
BDEPENDENCYHIGHLIGHT1
Press ENTER to continue:

```

4. Press Enter repeatedly to scroll through the entire list, or press Esc to bail out.

AutoCAD returns to the command prompt:

```
Command:
```

If you want to find out more about what a particular system variable controls, see the System Variables chapter in the Command Reference in the AutoCAD online help.



The three kinds of system variables are

- ✓ **Those saved in the Windows Registry.** If you change this kind of system variable, it affects all drawings when you open them with AutoCAD on your system.
- ✓ **Those saved in the drawing.** If you change this kind, the change affects only the current drawing.
- ✓ **Those that aren't saved anywhere.** If you change this kind, the change lasts only for the current drawing session.

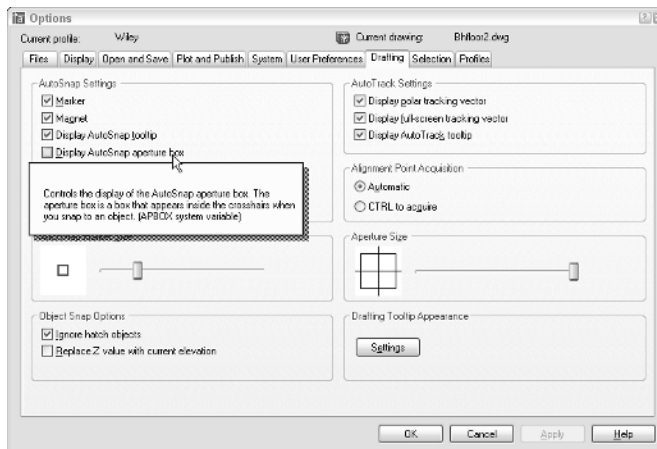
The System Variables chapter in the online Command Reference tells you which kind of system variable each one is.

Chrome and gloss: Dialog boxes

Fortunately, you don't usually have to remember the system variable names. AutoCAD exposes most of the system variable settings in dialog boxes so that you can change their values simply by clicking check boxes or typing values in edit boxes. This approach is a lot more user friendly than remembering an obscure name like "ACADLSPASDOC."

For example, many of the settings on the tabs in the Options dialog box, shown in Figure 2-11, are in fact system variables. If you use the dialog box quick help (click the question mark in the Options dialog box's title bar, and then click an option in the dialog box), the pop-up description not only describes the setting, but also tells which system variable it corresponds to.

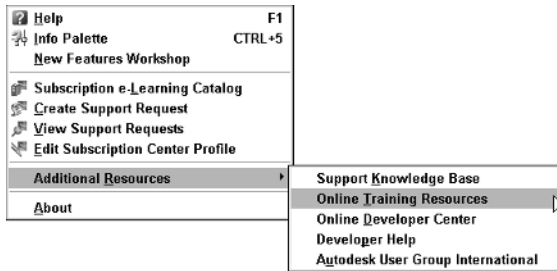
Figure 2-11:
Options — a
handy way
to change
some
system
variable
settings.



Fun with F1

The AutoCAD 2006 Help menu, shown in Figure 2-12, offers a slew of online help options. We describe most of them here:

Figure 2-12:
Lots of
AutoCAD
help.



✓ **Help:** The main AutoCAD 2006 online help system, shown in Figure 2-13, uses the same help engine as the Microsoft Office programs, Internet Explorer, and other modern Windows applications. As with these other programs, AutoCAD's help is context-sensitive; for example, if you start the LINE command and just don't know what to do next, Help will . . . er, help. Click the Contents tab to browse through the various online reference manuals, the Index tab to look up commands and concepts, and the Search tab to look for specific words. In this book, we sometimes direct you to the AutoCAD online help system for information about advanced topics.

Figure 2-13:
Help is at
your F1
fingertip.



✓ **Info Palette:** This option opens a Quick Help Info Palette, which is the Autodesk version of the Microsoft paper clip guy who tries to tell you what to do in Word or Excel at each step along the way. Like paper clip guy, Info Palette *seems* helpful — for 30 seconds. Then you get tired of the distraction and the wasted screen space.



- ✓ **New Features Workshop:** This describes the new and enhanced features in AutoCAD 2006. It's especially useful for people who are upgrading from a previous AutoCAD version.
- ✓ **Additional Online Resources:** Most of the choices in the Online Resources submenu connect you to various parts of Autodesk's Web site. The most useful is Product Support. From the support Web page, you can search the Autodesk Knowledge Base, download software updates, and get help from Web- and newsgroup-based discussion groups.

AutoCAD is one program with which you really need to take advantage of the online help resources. AutoCAD contains many commands, options, and quirks, and everyone from the greenest beginner to the most seasoned expert can find out something by using the AutoCAD online help. Take a moment to peruse the Contents tab of the main help system so that you know what's available. Throughout this book, we direct you to pages in the help system that we think are particularly useful, but don't be afraid to explore on your own when you get stuck or feel curious.

