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Bill Fane



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2014
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by **Bill Fane**
and
David Byrnes

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About the Authors

Bill Fane is a recovering doorknob designer. He was a product engineer and then product engineering manager for Weiser Lock in Vancouver, Canada, for 27 years and holds 12 U.S. patents. He has been using AutoCAD for design work since Version 2.17g (1986) and Inventor since version 1.0 beta (1996). He is a retired professional engineer and an Autodesk Authorized Training Center (ATC) certified instructor.

He began teaching mechanical design in 1996 at the British Columbia Institute of Technology (BCIT) in Vancouver, including such courses as AutoCAD, Mechanical Desktop, Inventor, SolidWorks, machine design, term projects, manufacturing processes, and design procedures. He retired from this position in 2008.

He has lectured on a wide range of AutoCAD and Inventor subjects at Autodesk University since 1995 and at Destination Desktop since 2003. He is the AUGI CAD Camp National Team instructor for the manufacturing track. He has written over 220 “The Learning Curve” columns for *CADalyst* magazine since 1986 and claims to be a close personal friend of Captain LearnCurve. He also writes software product reviews for *CADalyst*, *Design Product News*, and *Machine Design*. He is an active member of the Vancouver AutoCAD Users Society, “the world’s oldest and most dangerous.”

In his spare time he skis, water-skis, windsurfs, scuba dives, sails a Hobie Cat, rides an off-road motorcycle, drives his '37 Rolls-Royce limousine or his wife's '89 Bentley Turbo R, travels extensively with his wife, and plays with his grandchildren.

David Byrnes is one of those grizzled old-timers you'll find mentioned every so often in *AutoCAD 2014 For Dummies*. He began his drafting career on the boards in 1979 and first learned AutoCAD with version 1.4. Dave is based in Vancouver, British Columbia, where he works as a civil/structural drafter. He taught AutoCAD for 15 years at Emily Carr University of Art + Design and British Columbia Institute of Technology in Vancouver. Dave has authored or coauthored over a dozen AutoCAD books and was sole author of this title from *AutoCAD 2008 For Dummies* to *AutoCAD 2012 For Dummies*.

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We're proud of this book; please send us your comments at <http://dummies.custhelp.com>. For other comments, please contact our Customer Care Department within the U.S. at 877-762-2974, outside the U.S. at 317-572-3993, or fax 317-572-4002.

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Introduction

Welcome to the wonderful world of AutoCAD and to the fame and fortune that awaits you (would we lie to you?) as an AutoCAD user.

Believe it or not, AutoCAD is 30 years old, having been born in December 1982, when most people thought that personal computers weren't capable of industrial-strength tasks like CAD. (The acronym stands for Computer-Aided Drafting, Computer-Aided Design, or both, depending on whom you talk to.) What's equally scary is that many of today's hotshot AutoCAD users, and most of the readers of this book, weren't even born when the program first hit the street and the grizzled old-timers writing these words began using it.

AutoCAD remains the king of the microcomputer CAD hill by a tall margin, making it one of the longest-lived computer programs ever. It's conceivable that the long-term future of CAD may belong to special-purpose, 3D-based software such as the Autodesk Inventor and Revit programs, or to specialized market-specific variations built on top of AutoCAD. At any rate, AutoCAD's DWG file format is the de facto standard, so AutoCAD will be where the CAD action is for the foreseeable future.

You may have heard that AutoCAD is complex and difficult to learn and use. Well, it has been our observation that the easier any software is to learn and use, the sooner you bump up against its limitations. A car with no accelerator, one forward gear, no steering, and no brakes would be easy to use until you reached a hill, a curve, or a stop sign or you needed to back out of a parking space.

Yes, AutoCAD is complex, but that's the secret to its success. Some claim that few people use more than 10 percent of AutoCAD's capabilities. Closer analysis reveals that most people use the same basic 5 percent and everyone else uses a different 5 percent after that. The trick is to find *your* 5 percent, the sweet spot that suits your particular industry. If you follow our advice, we think you will find that using AutoCAD is as simple and intuitive as driving a car.

It should also be perfectly clear that if your career path has put you in a position where you need to know how to use AutoCAD, you're no dummy!

About This Book

Unlike many other *For Dummies* books, this one *often* tells you to consult the official software documentation. AutoCAD is just too big and powerful for a single book to attempt to describe it completely. The book that ultimately covers every AutoCAD topic would need a forklift to move it. Literally. They stopped shipping paper instruction manuals with the software somewhere around 1995, when the full documentation package grew to about a dozen volumes and more than 30 pounds.

In *AutoCAD 2014 For Dummies*, we occasionally mention differences from previous releases so that everyone gains some context and so that upgraders can more readily understand the differences; plus, you're bound to encounter a few of the billions and billions of drawings that were created using older methods. We also mention the important differences between AutoCAD and AutoCAD LT so that you're aware of the LT-related topics that you (or your colleagues) won't find in this book: AutoCAD LT has no programming language and is nearly devoid of 3D capabilities.

This book does *not* cover the discipline-specific features in AutoCAD-based nor vertical market products, such as AutoCAD Electrical or AutoCAD Mechanical, although most of the information in this book applies to the general-purpose features of those programs as well.

Foolish Assumptions

AutoCAD has a large, loyal, dedicated group of longtime users. *AutoCAD 2014 For Dummies* is not for you if you've been using AutoCAD for a decade or more, if you plan your vacation time around Autodesk University, if you use AutoCAD to create wedding invitations, or if you read 1,200-page technical tomes about AutoCAD for pleasure. This book *is* for you if you want to get going quickly with AutoCAD, and you understand the importance of developing proper CAD techniques from the beginning.

However, you do need to have an idea of how to use your computer system before tackling AutoCAD and this book. You need to have a computer system with AutoCAD or AutoCAD LT (preferably the 2014 version). A printer or plotter and a connection to the Internet are helpful, too.

You also need to know how to use your version of Windows to copy and delete files, create a folder, and find a file. You need to know how to use a mouse to select (highlight) or to choose (activate) commands, how to close a window, and how to minimize and maximize windows. You should be familiar with the basics of your operating system before you start using AutoCAD.

Late in 2010, Autodesk released the first non-Microsoft Windows version of AutoCAD in 20 years. Although AutoCAD for Mac is now available, *AutoCAD 2014 For Dummies* covers only the Windows version. The two

versions are file-compatible, but they differ in many ways in how they look and what they can do. If you have AutoCAD for Mac, you should be able to grasp basic concepts, but you might be better off with a Mac-specific book such as *Mastering AutoCAD For Mac*, by George Omura and Rick Graham (Sybex Publishing) or *What's Inside? AutoCAD for Macintosh*, by Ralph Grabowski, available as an e-book at www.upfrontezine.com/wiam.

Here are some conventions that you'll run across in this book.

Using the command line

Text that we want you to type into the program at the command line, in a dialog box, in a text box, or elsewhere appears in **boldface type**, like the 0 at the end of the following line.

Specify starting width <0.0000>: **0**

Examples of AutoCAD prompts appear in a special typeface, as does any other text in the book that replicates a message, a word, or text that appear onscreen. Sequences of prompts that appear on the AutoCAD command line have a shaded background, like this:

Specify lower left corner or [ON/OFF] <0.0000,0.0000>:

When there is a specific action we want you to take at one of these prompts, look for the italic passage at the end of this line, where we want you to press Enter:

Specify ending width <5.0000>: *Press Enter*

Many figures in this book also show AutoCAD command-line sequences that demonstrate AutoCAD's prompts and sample responses.

Using aliases

Many AutoCAD commands have *aliases* — these shortcut versions have fewer letters than their full commands, in case you like to type commands at the AutoCAD command line. In this book, we show aliases in uppercase as part of the command names. To start a command, you have to type only its uppercase letters. For example, to draw a line, type either **LINE** (the official command for the Line command), or just **L** (its alias) and then press Enter to execute the command.

Icons Used in This Book

Throughout this book, we point out certain morsels of particularly important or useful information by placing handy little icons in the margin. Naturally, different icons indicate different types of information:



Herein lies a pointed insight that can save you time and trouble as you use AutoCAD. In many cases, Tip information acts as a funnel on AutoCAD's impressive but sometimes overwhelming flexibility: After telling you many of the ways that you *can* do something, we tell you the way that you *should* do it, in most cases.



The Technical Stuff icon points out places where we delve a little more deeply into AutoCAD's inner workings or point out information that most people don't need to know most of the time. These paragraphs definitely are not required reading, so if you see one at a point when you've reached your techie-detail threshold, feel free to skip it.