
AUTODESK
Official Press
Don Bokmiller
Simon Whitbread
Dan Morrison
Mastering Autodesk® Revit® MEP 2015
SYBEX
A Wiley Brand

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Dear Reader,

Thank you for choosing *Mastering Autodesk Revit MEP 2015*. This book is part of a family of premium-quality Sybex books, all of which are written by outstanding authors who combine practical experience with a gift for teaching.

Sybex was founded in 1976. More than 30 years later, we're still committed to producing consistently exceptional books. With each of our titles, we're working hard to set a new standard for the industry. From the paper we print on, to the authors we work with, our goal is to bring you the best books available.

I hope you see all that reflected in these pages. I'd be very interested to hear your comments and get your feedback on how we're doing. Feel free to let me know what you think about this or any other Sybex book by sending me an email at `contactus@wiley.com`. If you think you've found a technical error in this book, please visit `http://sybex.custhelp.com`. Customer feedback is critical to our efforts at Sybex.

Best regards,

Chris Webb
Associate Publisher, Sybex

To my wife, family, friends, and coworkers, with much gratitude.

—Don Bokmiller

To my wife and daughter for all their support, all the time, thank you.

—Simon Whitbread

To my wife and children, family, friends, and fellow "Reviteers," thank you for all your support.

—Dan Morrison

Acknowledgments

This is my favorite part of the book to write, where I get to thank my darling wife, Shelley. Thanks also to my family for your kindness and encouragement.

I have had the great opportunity to work with many wonderful people who have influenced my career and provided wisdom, guidance, and friendship. I want to thank my friends and colleagues at Clark Nexsen, where I have been given the opportunity to grow and learn in a terrific working environment, which I could never take for granted. Thanks Johan, Jeff, Creighton, Freddy, Cheryl, Kat, and Larry. Thank you to all the great people I've met at the Revit Technology Conference events and those I've had the opportunity to work with at Autodesk University, especially Joel and Jarrod. Peer-networking is such a great way to learn and develop new ideas. Thank you also to Phil and Adam at Read|Thomas.

I cannot bypass the opportunity to thank all the incredible people at Sybex. Thank you, Willem, for once again keeping things moving. Thank you, Susan, Becca, and Judy for being such great editors. I'm sure there are many others who have worked hard to bring this book together. Thank you, all!

Thank you, Simon. I truly enjoy working with you on these books. Thanks also for your friendship. Thank you, Dan, for coming on board and providing your wisdom and experience. Thank you, Steve, for doing the dirty work of the technical edit. Your input has proven invaluable. It has been my pleasure to work with you all.

—Don Bokmiller

To my wife, Carole, and daughter, Jess, thank you both for your continued support over the past year while I have been working on this and other projects; it doesn't come anywhere near the thanks due for all your hard work and patience during the time I have been either working away from home or writing late into the night. The support from you both over the years has helped me achieve so much—what else can I say but thank you and I love you.

On the move… Again! I've been able to broaden my skills back in the United Kingdom and as I write this, I am settling into a new role, with Autodesk, providing BIM and Revit support to Enterprise clients. Life is never dull. Thank you also to everyone at Sybex who helped to get this edition moving. It seems unfair to single out any one person; suffice it to say that without you, there would be no book.

Finally, a special thanks to Don Bokmiller. What? You came back for more? You wanted to collaborate…again? With Dan now on board, and Steve who doesn't get enough credit, it's been a pleasure. THIS time we have a great team; let's keep it going!

—Simon Whitbread

To my wonderful wife, Rachel, thank you for your understanding, patience, and support over the last year and for all the time we have known each other. Without you I would not be where I am and would not have achieved what I have. To my beautiful children, I love you. Each of you is more important to me than you know.

I would also like to thank those who have been a big part of my journey with Revit MEP. There have been too many over the years to name them all, but the group of us that had worked together until recently was as good a team as I have ever been a part of: Matt, Graham, Eoin, and Lee, thank you so much for all the help you have given me. Thank you as well to all the fantastic people I have met through the West Australian Revit Users Group and the Revit Technology Conference events. These events are great forums for learning and mixing up new ideas. I must also thank those at BPi, particularly the rest of the VDC team, Levi, Tenae and Chris, for giving me a fantastic opportunity to continue to grow and learn at the cutting edge of what we do.

Thank you also to everyone at Sybex, from Willem who first gave me the chance to be a part of the book, to editors Pete, Susan, and Becca and all the rest of the team.

A special thanks to Simon, who recommended me to become a part of the authoring team, and to Don, who for some unknown reason actually listened to him and agreed, and to Steve, who did his best to remove my errors in the technical edit. I do look forward to working with you all in the future.

—Dan Morrison

About the Authors

Don Bokmiller is a design technologist at Clark Nexsen, an architecture and engineering firm in Norfolk, Virginia. He has worked in the AE design industry since 1996, when he started out as a CAD technician in the electrical department. As the company grew, he eventually became one of a few CAD managers, while also participating as an electrical designer on several projects. When Revit Systems came along, he participated in the Autodesk Beta program and has continued to do so for each release. His current position is to optimize the company's use of Revit. He currently works under the direction of the technical director, tying the software user experience directly to the software, hardware, and network administrators. Don has also worked as an application specialist, supporting clients of various sizes and various company structures on their use of Revit MEP. He has taught classes and given presentations to local engineering organizations. Don is an Autodesk User Group International (AUGI) member and has presented at Autodesk University and the Revit Technology Conference North America.

Simon Whitbread, Revit and CAD implementation specialist, started using Revit at release 5.1. He has over 30 years of experience in the building services and architectural industries. Since the early 1990s, he has been involved in developing and managing CAD and IT systems. He moved to New Zealand in 2002, where he led the implementation of Revit Architecture at Jasmax, one of New Zealand's leading architectural practices. More recently he has been providing implementation, support, and training services for AutoCAD and the Revit suite of programs to companies in Australia, Dubai, Indonesia, New Zealand, Singapore, the United States. Now living back in the United Kingdom, Simon enjoys spending time with his family, is a frequent speaker at Autodesk University and Revit Technology Conference (RTC) events, and is a member of AUGI, Twitter, and that odd Facebook thingy.

Dan Morrison is VDC engineer at BPi - BGC POS International, in Perth, Australia. With over 20 years' experience as a Mechanical Engineer, designer, and modeler, he started at AECOM (then Bassett Consulting Engineers) in Sydney in 2000. He was transferred to Perth in 2003 to build up the West Australian team and was part of the growth of that office from just 5 to 100 people, including introducing Revit MEP to the company in 2006. Daniel became an implementation and development leader for AECOM in the Australia and New Zealand region. In 2013 it became time to move on to new adventures and Daniel became VDC engineer at BPi, a joint venture between BGC and POSCO E&C, where his role includes using various BIM tools to help the collaboration between all members of the design and construction teams. Daniel is an Autodesk Beta tester for Revit and Navisworks, is an active member of the AUGI Forum and Revitforum.org, and has presented at the Revit Technology Conference (RTC) AUS event, BIM Day Out (Perth), and various other seminars, conferences, panel discussions, and industry events.

Contents at a Glance

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Introduction

Welcome to *Mastering Autodesk® Revit® MEP 2015*. We have worked diligently to bring you a book that takes you through the core features and functionality of Revit MEP 2015 from both the design and documentation perspectives.

Revit MEP started out as Revit Systems in 2006, and in just a few years, it started on a fast-track development pace to bring it up to speed with the Revit Architecture and Revit Structure platforms. The 2015 release of Revit MEP provides platform improvements along with MEP-specific features that make this a very exciting edition. When Revit Systems was first released, it was primarily to allow MEP engineers to join the move toward building information modeling (BIM) that was being taken on by architects and structural engineers. The features and functionality were, in the opinion of most, limited to provide a complete MEP project. The development team has been listening to the needs of users and has delivered tools and features in this release that have been desired by many from the beginning. We now have new methods for calculating pressure drop and adding images to schedules, new MEP content, tapped duct and pipe flow tags, and many other new features.

The primary focus of this book is, of course, on the MEP disciplines, but there is plenty of information that applies to Revit in general. The idea behind the format is to take you through the major points of the design process and requirements for completing a building design and project submittal. This book focuses on building engineering, but it may also be helpful for other types of engineering projects, such as process piping design or any others that require a combination of data and model components.

The book is written in five parts, the first of which covers general functionality that is useful for all disciplines. You will find suggestions throughout the book for including features and components in your project templates. The first part does not cover every pick and click available in the software; it approaches the use of Revit from a best-practices standpoint, which we hope will inspire you to think about ways to make Revit MEP 2015 work best for you. Any topics not covered were not omitted to imply that they are unimportant but simply because you can find information about these features in the documentation provided by Autodesk and in Revit MEP 2015 Help.

The next three parts of the book are MEP specific and have been written to cover the key design areas of each individual discipline (mechanical, electrical, and plumbing). Again, we focus on best practices by relating our professional experience with not only the software but also the design industry. In an effort to tie it all together, the fifth part of the book contains information on how to optimize your Revit experience by learning the tools and features available for creating the various components that make up an MEP model.

Who Should Buy This Book

This book is intended for readers who are at least somewhat familiar with Revit MEP. It is not intended to be a "how-to" book by simply explaining picks and clicks; it is more for readers who are looking to find ideas on how to make the software work for them. Engineers, designers, modelers, and CAD technicians will all find useful information related to their workflows. If you are looking to move further with your Revit MEP implementation, you should find this book to be a useful resource. Even if you know the topics discussed in this book, we hope you will be inspired to think of new ways to improve your Revit MEP experience.

Free Autodesk Software for Students and Educators

The Autodesk Education Community is an online resource with more than five million members that enables educators and students to download—for free (see website for terms and conditions)—the same software used by professionals worldwide. You can also access additional tools and materials to help you design, visualize, and simulate ideas. Connect with other learners to stay current with the latest industry trends and get the most out of your designs. Get started today at `www.autodesk.com/joinedu`.

What's Inside

Here is a glance at what's in each chapter:

Part 1: General Project Setup

Chapter 1: Exploring the User Interface The ribbon interface is designed for optimal workflow. In this chapter, you will discover the features of the user interface that allow you to work efficiently. Some new features in Revit MEP 2015 improve the user interface dramatically.

Chapter 2: Creating an Effective Project Template The key to success with Revit projects is to have a good template file. Chapter 2 takes you through the major areas of a template file, offering ideas for settings that will make starting a project as simple and efficient as possible.

Chapter 3: Worksets and Worksharing This chapter guides you through the process of setting up a project file in a multiuser environment. The features of a worksharing-enabled file are explained in a manner that promotes ideas for project workflow efficiency.

Chapter 4: Project Collaboration Revit has many features that make project collaboration easy to manage. In this chapter, you will learn about ways to use the power of Revit MEP to coordinate your design and documents with other members of the project team.

Chapter 5: Multiplatform Interoperability: Working with 2D and 3D Data This chapter provides best-use techniques for importing non-Revit data into your projects. You will learn about the data types available and how to use them effectively in your Revit project files.