

Autodesk® Revit® Structure 2014 Fundamentals



Visit the following websites to learn more about this book:



Table of Contents

| | |
|--|------|
| Preface | vii |
| Class Files | ix |
| Setting Up the Interface | xi |
| Chapter 1 Introduction to Autodesk Revit Structure | 1-1 |
| 1.1 Building Information Modeling | 1-3 |
| Workflow and BIM..... | 1-4 |
| Views and Sheets | 1-5 |
| 1.2 Overview of the Interface | 1-6 |
| 1.3 Standard Terminology..... | 1-19 |
| 1.4 Starting Projects | 1-21 |
| Opening Projects | 1-22 |
| Starting New Projects | 1-23 |
| Saving Projects | 1-24 |
| 1.5 Viewing Commands..... | 1-27 |
| Zooming and Panning..... | 1-27 |
| Viewing in 3D..... | 1-29 |
| Visual Styles | 1-31 |
| Practice 1a Open and Review a Project..... | 1-33 |
| Chapter 2 Basic Drawing and Editing Tools..... | 2-1 |
| 2.1 General Drawing Tools..... | 2-3 |
| Draw Tools..... | 2-5 |
| Drawing Aids..... | 2-8 |
| 2.2 Editing Elements..... | 2-11 |
| Selecting Elements | 2-13 |
| Modifying Multiple Elements | 2-15 |
| Practice 2a Selecting and Modifying Elements..... | 2-20 |
| 2.3 Basic Modifying Tools..... | 2-26 |
| Moving and Copying Elements | 2-26 |
| Rotating Elements | 2-28 |
| Mirroring Elements..... | 2-29 |
| Creating Linear and Radial Arrays..... | 2-30 |
| Practice 2b Modifying Tools..... | 2-33 |
| 2.4 Helpful Editing Tools..... | 2-40 |
| Aligning Elements | 2-40 |
| Splitting Walls and Lines..... | 2-41 |
| Trimming and Extending..... | 2-42 |
| Offsetting Elements | 2-44 |

| | |
|---|-------------|
| Practice 2c Helpful Editing Tools | 2-47 |
| Chapter 3 Setting up Levels and Grids | 3-1 |
| 3.1 Setting Up Levels..... | 3-3 |
| Modifying Levels | 3-6 |
| 3.2 Creating Structural Grids..... | 3-8 |
| Adding Grids | 3-8 |
| Modifying Grid Lines | 3-9 |
| Practice 3a Adding Levels and Grids..... | 3-12 |
| Chapter 4 Working with Views | 4-1 |
| 4.1 Duplicating Views | 4-3 |
| Duplication Types | 4-4 |
| 4.2 Adding Callout Views..... | 4-7 |
| Modifying Callouts | 4-8 |
| 4.3 Setting the View Display | 4-12 |
| Underlays..... | 4-12 |
| View Range | 4-13 |
| Overriding Graphics in a View | 4-15 |
| 4.4 Elevations and Sections | 4-20 |
| Elevations | 4-21 |
| Sections | 4-23 |
| Modifying Elevations and Sections | 4-25 |
| Practice 4a Creating Sections, Elevations, and Callouts | 4-30 |
| Chapter 5 Starting Structural Projects | 5-1 |
| 5.1 Importing and Linking CAD Drawings | 5-3 |
| Modifying Imported/Linked CAD Files | 5-6 |
| Practice 5a Linking and Managing a CAD File | 5-9 |
| 5.2 Linking in Architectural Projects | 5-12 |
| Managing Links..... | 5-15 |
| 5.3 Copying and Monitoring Elements | 5-18 |
| Copy/Monitor Options | 5-20 |
| Monitoring Elements | 5-21 |
| Working with Monitored Elements | 5-22 |
| Practice 5b Linking and Coordinating Projects | 5-25 |
| Chapter 6 Adding Columns and Walls | 6-1 |
| 6.1 Placing Vertical Structural Columns..... | 6-3 |
| Modifying Columns | 6-5 |
| Loading Structural Column Types | 6-6 |
| 6.2 Placing Slanted Structural Columns..... | 6-8 |
| Working in3D Views..... | 6-9 |
| Working in Elevations or Sections | 6-12 |

| | |
|---|-------------|
| 6.3 Drawing Walls | 6-14 |
| 6.4 Modifying Walls | 6-17 |
| Practice 6a Adding Columns and Walls..... | 6-24 |
| Chapter 7 Adding Foundations and Structural Slabs..... | 7-1 |
| 7.1 Creating Wall Footings..... | 7-3 |
| 7.2 Isolated Footings | 7-7 |
| Working with Custom Families | 7-10 |
| 7.3 Piers and Pilasters..... | 7-12 |
| 7.4 Creating Structural Slabs | 7-14 |
| Modifying Slabs | 7-18 |
| Editing the Structure of a Slab | 7-20 |
| Slab Edges | 7-22 |
| Creating Shaft Openings | 7-24 |
| Practice 7a Adding Foundations and Floors..... | 7-27 |
| Chapter 8 Structural Reinforcement | 8-1 |
| 8.1 Structural Reinforcement..... | 8-3 |
| Structural Reinforcing Settings | 8-4 |
| 8.2 Adding Rebar | 8-9 |
| Multi-planar Rebar | 8-14 |
| Viewing Rebar in 3D Views | 8-16 |
| 8.3 Modifying Rebar Placement..... | 8-19 |
| Rebar Types | 8-20 |
| Editing Plan and Section Profiles..... | 8-21 |
| 8.4 Reinforcing Walls, Floors, and Slabs | 8-23 |
| Area Reinforcement..... | 8-24 |
| Path Reinforcement | 8-26 |
| Modifying Area and Path Reinforcement | 8-28 |
| Fabric Reinforcement | 8-31 |
| Practice 8a Reinforcing Structural Elements | 8-36 |
| Chapter 9 Beams and Framing Systems | 9-1 |
| 9.1 Adding Beams and Beam Systems..... | 9-3 |
| 9.2 Modifying Beams | 9-12 |
| Sloping and Offsetting Beams | 9-13 |
| Adding Beam Cantilevers | 9-14 |
| Changing Justifications..... | 9-16 |
| Attaching a Column to a Beam | 9-18 |
| Applying Beam Coping | 9-18 |
| Editing Beam Joins | 9-19 |
| Framing Openings | 9-20 |

| | |
|---|--------------|
| 9.3 Framing Annotation..... | 9-22 |
| Beam Annotations | 9-22 |
| Beam Systems Symbol..... | 9-24 |
| Practice 9a Adding Beams and Framing Systems | 9-26 |
| 9.4 Adding Bracing | 9-39 |
| Modifying Bracing | 9-40 |
| Creating Groups | 9-41 |
| Cross Bracing Settings | 9-46 |
| Practice 9b Brace Frames | 9-48 |
| Chapter 10 Projects - Steel and Concrete Structures..... | 10-1 |
| 10.1 Steel Structure - Additional Practices | 10-3 |
| 10.2 Concrete Structure - Additional Practices | 10-16 |
| Chapter 11 Construction Documents..... | 11-1 |
| 11.1 Setting Up Sheets | 11-3 |
| Sheet (Title Block) Properties | 11-5 |
| 11.2 Placing and Modifying Views on Sheets | 11-7 |
| Modifying Views on Sheets..... | 11-10 |
| Working Inside Views | 11-12 |
| 11.3 Revision Tracking..... | 11-14 |
| Revision Clouds..... | 11-15 |
| Creating the Revision Table | 11-16 |
| Issuing Revisions..... | 11-18 |
| Practice 11a Creating Sheets | 11-20 |
| 11.4 Printing Sheets | 11-26 |
| Printing Options | 11-26 |
| Chapter 12 Annotating Construction Documents..... | 12-1 |
| 12.1 Working with Dimensions..... | 12-3 |
| Modifying Dimensions..... | 12-7 |
| Multi-Rebar Annotation | 12-11 |
| 12.2 Working With Text | 12-13 |
| Spell Checking | 12-16 |
| Creating Text Types | 12-16 |
| 12.3 Adding Detail Lines and Symbols..... | 12-18 |
| Using Symbols | 12-19 |
| 12.4 Creating Legends | 12-20 |
| Practice 12a Annotating Construction Documents | 12-22 |

| | |
|---|----------------|
| Chapter 13 Detailing | 13-1 |
| 13.1 Setting Up Detail Views..... | 13-3 |
| Connecting a Callout to a Drafting View | 13-5 |
| Saving a Drafting View | 13-5 |
| 13.2 Creating Details | 13-8 |
| Detail Lines | 13-8 |
| Detail Components | 13-9 |
| Repeating Details | 13-11 |
| 13.3 Annotating Details | 13-12 |
| Adding Detail Tags | 13-13 |
| 13.4 Patterning | 13-15 |
| Practice 13a Creating Details | 13-18 |
| Practice 13b Additional Detail (Optional)..... | 13-27 |
| Chapter 14 Scheduling | 14-1 |
| 14.1 Structural Schedules..... | 14-3 |
| 14.2 Graphical Column Schedules..... | 14-4 |
| Modifying Graphical Column Schedules..... | 14-5 |
| 14.3 Working with Schedules | 14-8 |
| Modifying Schedules..... | 14-9 |
| Modifying a Schedule on a Sheet..... | 14-11 |
| Importing and Exporting Schedules..... | 14-12 |
| 14.4 Creating Schedules | 14-15 |
| Building Component Schedules..... | 14-16 |
| Material Takeoff Schedules | 14-22 |
| 14.5 Modifying Schedules..... | 14-23 |
| Modifying Schedule Properties | 14-24 |
| Setting up Cell Appearance | 14-24 |
| Practice 14a Column, Count, and Footing Schedules | 14-31 |
| Appendix A Introduction to Worksets..... | A-1 |
| A.1 Introduction to Worksets | A-3 |
| Saving Workset Related Files..... | A-5 |
| Index..... | Index-1 |
