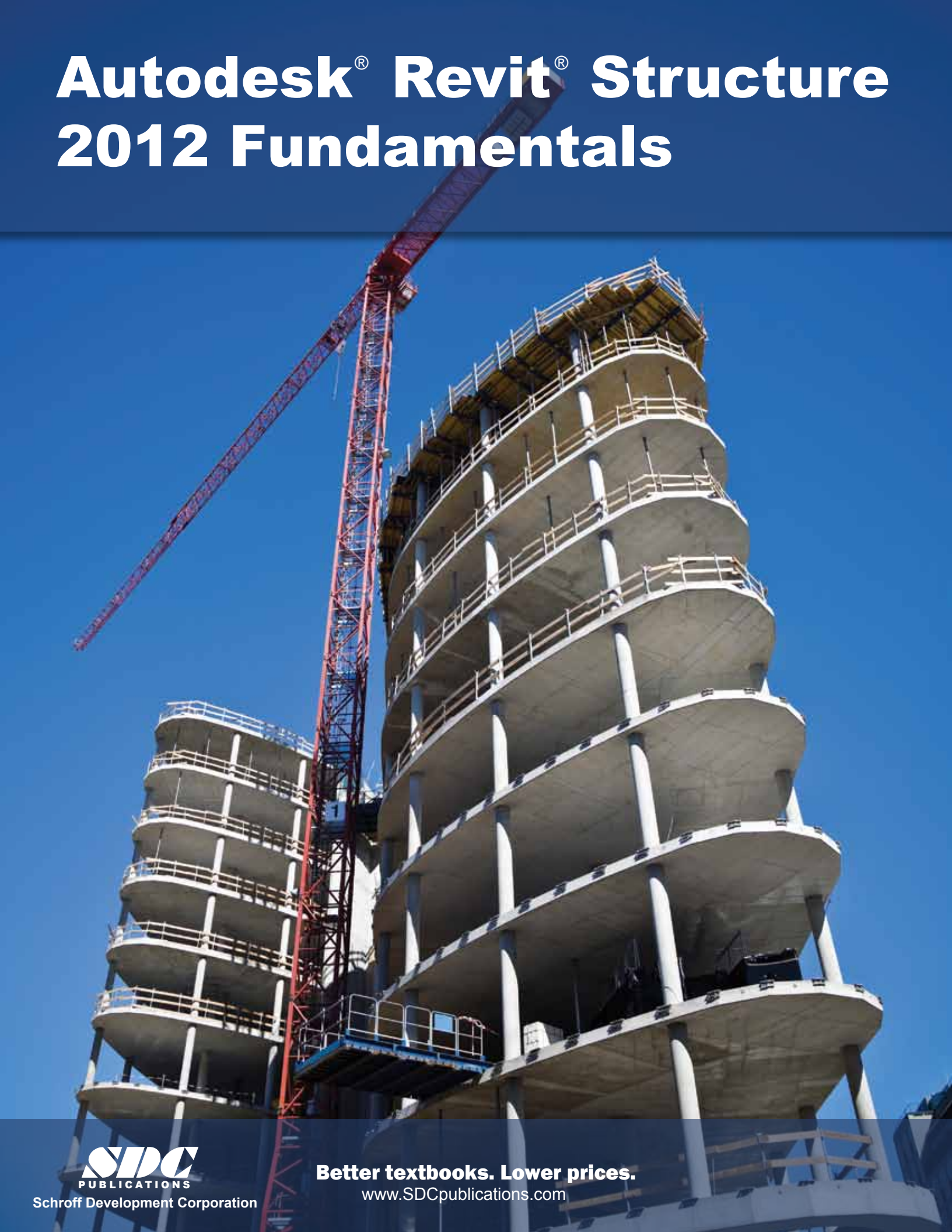
Autodesk® Revit® Structure 2012 Fundamentals



SDC PUBLICATIONS
Schroff Development Corporation

Better textbooks. Lower prices.
www.SDCpublications.com

Table of Contents

Preface ..... **vii**

Class Files ..... **viii**

Chapter 1 Introduction to Autodesk Revit Structure **1-1**

1.1 Overview of the Program **1-3**
BIM and Structural Engineering 1-3

1.2 Working with Projects **1-4**
File Types 1-4
Types of Elements 1-5
Families 1-6

1.3 Understanding the Interface **1-7**
Shortcut Menus 1-16

1.4 Viewing Tools **1-17**
Switching Between Views 1-17
View Control Bar 1-17
Practice 1a Introduction to the Autodesk Revit Structure Software 1-25

Chapter 2 Setting Up Levels and Grids **2-1**

2.1 Creating and Using Levels **2-3**
Creating Levels 2-3
Modifying Levels 2-7

2.2 Placing Grid Lines **2-9**
Modifying Grid Lines 2-12
Practice 2a Adding Levels and Grids 2-14

Chapter 3 Working with Views **3-1**

3.1 Creating Elevations **3-3**
Modifying Elevations 3-4
Framing Elevations 3-8

3.2 Creating Sections **3-11**
Modifying the Section Marker 3-12

3.3 Creating Callouts **3-14**
Practice 3a Creating Levels, Sections, and Callouts 3-15

Chapter 4 Editing Elements **4-1**

4.1 Select Elements for Editing **4-3**
Selecting Multiple Elements 4-3
Filtering Selections 4-4
Pinning Elements 4-5

© Do not duplicate.

4.2 Work With Temporary Dimensions 4-7
Temporary Dimensions Settings 4-8
Moving the Dimension Reference (Witness line) 4-11
Practice 4a Element Selection 4-12

Chapter 5 Modify Commands 5-1

5.1 Move and Copy 5-3

5.2 Rotate 5-5

5.3 Array 5-7

5.4 Mirror 5-10
Practice 5a Manipulating Elements 5-12

5.5 Align 5-19

5.6 Split 5-21

5.7 Offset 5-22

5.8 Trim and Extend 5-24
Practice 5b Modifying Elements 5-26

Chapter 6 Creating an Architectural Underlay 6-1

6.1 Working with Architectural Underlays 6-3

6.2 Importing and Linking CAD Files 6-4
Modifying Imported/Linked CAD Files 6-6
Visibility Graphics Settings 6-9
Practice 6a Linking and Managing a CAD File 6-11

6.3 Linking in Projects Created in the Autodesk Revit Architecture Software 6-14

6.4 Copying and Monitoring Elements 6-17
Copy/Monitor Options 6-19
Monitoring Elements 6-20
Working with Monitored Elements 6-20
Practice 6b Linking and Coordinating Projects 6-26

Chapter 7 Adding Columns and Walls 7-1

7.1 Placing Structural Columns 7-3
Modifying Columns 7-5
Loading Additional Structural Column Types 7-7

7.2 Placing Slanted Structural Columns 7-9
Working in3D Views 7-10
Working in Elevations or Sections 7-13

7.3 Drawing and Modifying Walls 7-16
Modifying Walls 7-18
Temporary Dimensions and Walls 7-22
Practice 7a Adding Columns and Walls 7-26

© Do not duplicate.

Chapter 8 Adding Foundations 8-1

8.1 Strip Footings 8-3
Bearing Footings 8-3
Creating a Foundation Plan View 8-5

8.2 Step and Spread Footings 8-9
Working with Custom Families 8-12

8.3 Piers and Pilasters 8-14
Practice 8a Adding Foundations 8-16

8.4 Structural Slabs 8-22
Editing the Structure of a Slab 8-24
Slab Edges 8-26
Practice 8b Adding Slabs 8-27

Chapter 9 Structural Reinforcement 9-1

9.1 Structural Reinforcement 9-3

9.2 Setting the Cover Depth 9-4

9.3 Adding Rebar 9-6
Displaying Rebar in 3D Views 9-13
Modifying Rebar Placement 9-15
Rebar Types 9-16
Editing Plan and Section Profiles 9-17

9.4 Area Reinforcement 9-18

9.5 Path Reinforcement 9-20
Practice 9a Reinforcing Structural Elements 9-24

Chapter 10 Beams and Framing Systems 10-1

10.1 Adding Beams and Beam Systems 10-3

10.2 Modifying Beams 10-11
Sloping Beams 10-12
Adding Beam Offsets 10-13
Adding Beam Cantilevers 10-13
Adding Joist Extensions 10-14
Attaching a Column to a Beam 10-14
Applying Beam Coping 10-15
Editing Beam Joins 10-16

10.3 Labeling Framing 10-17
Loading and Specifying Tags 10-17
Practice 10a Adding Beams and Framing Systems 10-20
Practice 10b Concrete Framing (Optional) 10-34

Chapter 11 Brace Frames 11-1

11.1 Framing Elevations 11-3
Setting up the View Display 11-4

© Do not duplicate.

11.2 Adding Bracing 11-6
Cross Bracing Settings 11-12
Practice 11a Brace Frames 11-13

Chapter 12 Floors, Shafts, and Stairs 12-1

12.1 Creating Floor Systems 12-3
Practice 12a Adding Floor Slabs 12-8
Practice 12b Adding Floors to a Concrete Structure (Optional) 12-12

12.2 Creating Shaft Openings 12-14

12.3 Framing Shaft Openings 12-17
Practice 12c Creating Shaft Openings 12-19

12.4 Understanding Stairs and Ramps 12-28

Chapter 13 Annotation 13-1

13.1 Working with Text 13-3
Setting the Paragraph Format 13-5
Spell Checking 13-6
Creating Text Types 13-6

13.2 Dimensioning 13-8
Modifying Dimensions 13-12
Practice 13a Text and Dimensions 13-15

Chapter 14 Detailing 14-1

14.1 Setting Up Detail Views 14-3
Connecting a Callout to a Drafting View 14-4
Saving a Drafting View 14-5

14.2 Creating Details 14-7
Detail Lines 14-7
Detail Components 14-8
Repeating Details 14-10

14.3 Annotating Details 14-11
Using Symbols 14-11
Adding Detail Tags 14-13

14.4 Patterning 14-14
Practice 14a Detailing 14-17

Chapter 15 Scheduling 15-1

15.1 Column Schedules 15-3

15.2 Modifying Schedules 15-12

15.3 Other Schedules 15-14
Footing Schedules 15-14
Practice 15a Column, Count, and Footing Schedules 15-17

© Do not duplicate.

15.4 Legend Views 15-24
Practice 15b Legends 15-28

Chapter 16 Sheets and Revisions 16-1

16.1 Creating Sheets 16-3

16.2 Placing and Modifying Views on Sheets 16-6
Modifying Views on Sheets 16-9
Working Inside Views 16-11

16.3 Adding Revisions 16-13
Practice 16a Creating Sheets 16-15

16.4 Printing Sheets 16-20

Index Index-1

© Do not duplicate.