

autodesk revit structure 2017 user manual

Published: September 19, 2026 | Index ID: #-

Introduction

When architects, engineers, and construction professionals step into the world of Building Information Modeling (BIM), they often encounter Autodesk Revit as the industry's leading platform. Within Revit's suite, Revit Structure 2017 offers a specialized set of tools for structural design and analysis, making it a favorite among civil and structural engineers. However, mastering this version requires a solid understanding of its interface, workflows, and hidden capabilities. This article serves as a comprehensive guide, blending the essential elements of a user manual with practical tips that will help you navigate Revit Structure 2017 with confidence.

What Is Autodesk Revit Structure 2017?

Revit Structure 2017 is a standalone application that focuses on the structural aspects of BIM projects. Unlike the generic Revit platform, it provides dedicated tools for modeling beams, columns, slabs, and load-bearing elements, as well as built-in analysis capabilities for structural performance. It integrates seamlessly with Revit's collaborative environment, allowing teams to share a unified model across design, analysis, and documentation stages.

Why a User Manual Matters

While online tutorials and community forums are invaluable, a well-structured user manual offers a systematic approach to learning. It provides step-by-step instructions, consistent terminology, and a reference point for troubleshooting. For Revit Structure 2017, the manual helps users:

- Understand the software's architecture and workflow.
- Adopt best practices for project setup and file management.
- Leverage advanced features such as parametric families and analysis tools.
- Resolve common issues quickly, reducing downtime.

Getting Started with Revit Structure 2017

System Requirements

Before installation, ensure your workstation meets the minimum specifications:

- Operating System: Windows 7 SP1 (64 bit) or Windows 8.1 (64 bit).
- Processor: Intel Core i5 or equivalent.
- RAM: 8 /GB (16 /GB recommended for large models).
- Graphics Card: DirectX 11-compatible with at least 512 /MB VRAM.
- Hard Drive: 10 /GB of free space (SSD preferred).

Installation Steps

1. Insert the Revit Structure 2017 installation media or download the ISO file from Autodesk's official site.
2. Run the installer and follow the on-screen prompts.
3. Accept the license agreement and choose a destination folder.
4. When prompted, select the components you wish to install (e.g., Revit Structure, Revit Architecture).
5. Complete the installation and restart your computer if required.

First Time Setup

Upon launching Revit Structure 2017 for the first time, you'll encounter the **Start Page**. From here, you can:

- Create a new project using one of the pre-configured structural templates.
- Open an existing project file.
- Access the help menu for quick reference.

It's advisable to customize the environment early: set your units, default view templates, and project parameters to align with your firm's standards.

Core Features Overview

Project Browser

The Project Browser is the command center for your model. It organizes views, sheets, families, and families' categories, allowing you to navigate large projects efficiently. Familiarity with the browser's filters and view options can save you significant time when locating specific elements.

Family Management

Revit Structure 2017 relies on parametric families to represent structural components. Families are editable in the **Family Editor**, where you can adjust parameters, constraints, and geometry. Mastery of family creation and editing is essential for creating custom elements that fit your design requirements.

Structural Analysis Tools

One of the standout features of Revit Structure 2017 is its integrated analysis engine. You can perform:

- Static and dynamic load calculations.
- Beam and column stress analysis.
- Member deflection and buckling checks.
- Load path visualization.

These tools provide instant feedback, reducing the need for external analysis software for many routine checks.

3D Visualization

Revit's 3D environment allows you to view your model from any angle. You can switch between shaded, wireframe, and realistic render modes. Additionally, the **Section Box** feature helps isolate specific portions of the model for detailed inspection.

Collaboration and Cloud

Revit Structure 2017 supports **Revit Cloud Worksharing**, enabling multiple users to work on the same model simultaneously. This feature streamlines coordination, reduces conflicts, and ensures that everyone has access to the latest version.

Detailed User Manual Guide

Navigating the Interface

The user interface is divided into several key areas:

- Ribbon – Contains tabs for common commands.
- Tool Palettes – Quick access to frequently used tools.
- Properties Palette – Displays parameters for the selected element.

- View Window – The main area where your model is displayed.

Creating a New Project

1. From the Start Page, click New and choose the “Structural” template.
2. Specify the project name, location, and units.
3. Set up project parameters such as building height, material standards, and structural system types.
4. Click OK to generate the project skeleton.

Working with Views and Sheets

Views provide different perspectives of your model. Common view types include:

- Plan Views – Floor plans.
- Elevation Views – Building facades.
- 3D Views – Comprehensive spatial representations.
- Section Views – Transverse cuts through the model.

Sheets are the layout containers for printing. You can place multiple views on a single sheet, annotate them, and add titles and legends.

Adding Structural Components

To add beams, columns, or slabs, follow these steps:

1. Navigate to the Structure tab on the ribbon.
2. Select the appropriate tool (Beam, Column, Slab).
3. Choose the family and type from the Properties palette.
4. Click in the view to place the element, then drag to define its length.
5. Adjust parameters such as spacing, orientation, or custom dimensions as needed.

Annotation and Documentation

Annotations include dimensions, notes, tags, and schedules. Revit Structure 2017 offers:

- Automatic Dimensioning – Quickly generate dimensions that update with model changes.
- Tagging tools for beams, columns, and other structural elements.
- Schedules that extract data from the model, such as material lists or member counts.

Using Analysis Tools

To run an analysis:

1. Open the Analyze tab.
2. Select Run Analysis and choose the analysis type (e.g., Load, Stress).
3. Define load cases and load combinations.
4. Click Run to generate results.
5. Review the Analysis Report for insights into member performance.

Managing Parameters

Parameters control the behavior of families and elements. They can be **shared** (visible across the project) or **instance-specific**. To edit parameters:

- Open the element's Properties palette.
- Click the Manage Parameters button.
- Add, modify, or delete parameters as required.

Exporting and Sharing

Revit Structure 2017 supports various export formats:

- DWG/DXF for CAD compatibility.
- IFC for interoperability with other BIM tools.
- PDF for sharing static documentation.
- Revit Link files for collaborative workflows.

Use the **Export** command from the **File** menu, selecting the desired format and settings.

Tips & Tricks for Power Users

Custom Templates

Creating a project template tailored to your firm's standards can streamline new project setup. Include:

- Predefined view templates.
- Custom family libraries.
- Standard project parameters.
- Default title blocks and sheet sets.

Keyboard Shortcuts

Revit Structure 2017 supports a range of shortcuts that accelerate workflow. Some commonly used shortcuts include:

- Ctrl + N – New project.
- Ctrl + S – Save.
- Ctrl + Shift + S – Save As.
- Ctrl + P – Print.
- Ctrl + G – Go to.

Scripting with Dynamo

Dynamo is a visual programming environment that extends Revit's capabilities. With Dynamo, you can automate repetitive tasks, generate parametric families, and integrate external data sources. Start with simple scripts such as:

- Batch renaming of elements.
- Automated placement of structural components.
- Data extraction for reporting.

Performance Optimization

Large structural models can become sluggish. Improve performance by:

- Using Worksets to control visibility.
- Limiting the number of Detail Levels in 3D views.

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