

EXAM OBJECTIVES



Autodesk Certified Professional: Revit for Structural Design

The Autodesk Certified Professional (ACP) certification is designed for industry professionals who possess advanced skills and can solve complex challenges in workflow and design. ACP is the industry recognized credential for users who have mastered the Autodesk software skills covered in these exams. This type of experience typically comes from having worked with the software on a regular basis for at least 2 years, equivalent to approximately 400 hours (minimum) - 1200 hours (recommended), of real-world Autodesk software experience. Certification at this level demonstrates a comprehensive skill set that provides an opportunity for individuals to stand out in a competitive professional environment.

Prerequisites

It is expected that you will have a general understanding of:

- Navigate the Revit interface
- View and navigate a Revit model
- Understand the concept of architectural 3D modeling
- Create and modify basic 3D elements, annotations, and views
- Demonstrate basic digital literacy skills

The topics and features of the Autodesk software that may be covered in the exam are listed below each objective.

Note: Within the context of this exam, all references to “create, select, manage, etc.” indicate “know how to create, select, manage, etc.”

1. Modeling and Materials

1.1 Create and modify structural elements

1.1.a Work with foundations

- i. May include wall foundations; foundation slabs; foundation properties; isolated footings; piles; and pile caps.*

1.1.b Work with structural floors

- i. May include slab edge conditions; floor boundary conditions; slopes; variable thicknesses; openings (regular and shaft); and advanced editing of floor.*

- 1.1.c** Work with structural walls and wall types
 - i. May include creating and modifying compound and stacked walls; wall alignment; editing a wall profile; layer wrapping; wall joints; wall constraints; attaching a wall to a floor; and advanced editing of wall types.*
- 1.1.d** Work with structural columns
 - i. May include placing and modifying structural columns on a grid; slanted columns; column constraints and properties; and understanding the difference between architectural and structural columns.*
- 1.1.e** Work with structural framing and connections
 - i. May include beams and beam systems, trusses, vertical bracing, joists, girders, purlins, horizontal bracing, coping, concrete framing, framing properties, framing constraints (attach framing to columns); and understanding points (nodes).*
 - ii. May include standard structural connections; loading and placing steel connections; modifying steel connections; and copying steel connections.*
- 1.1.f** Work with stairs
 - i. May include creating and editing structural stairs (concrete, cross laminated timber); creating a shaft; and creating stairs and landings by sketch.*
- 1.1.g** Understand the functions and limitations of model and detail groups
- 1.1.h** Work with reinforcement tools
 - i. May include general reinforcement settings; rebar covers; reinforcement rounding; reinforcement presentation; area and path reinforcement; and varying rebar set.*
 - ii. May include adding rebar; shape driven rebar modeling (Shape Library, Sketch Rebar); Free Form rebar modeling (Aligned and Surface distribution); area reinforcement; path reinforcement; fabric reinforcement; rebar sets; rebar constrains; and host covers; adding rebar coupler; rebar and coupler numbering for schedules and annotations; reinforcement partitions; numbering sequences; reinforcement rounding; and controlling the bar presentation in a rebar set.*

1.2 Use and modify element materials

- 1.2.a** Associate a material with an object or a style
- 1.2.b** Create and edit a basic material and its properties
 - i. May include understanding how material settings and properties affect the appearance of an associated element.*
- 1.2.c** Load a material library

1.3 Use selection sets

- 1.3.a** Create, edit, and load selection sets

2. Families

2.1 Manage family categories and types

- 2.1.a** Configure family types
 - i. May include adding, renaming, and duplicating family types; and editing properties of a family type.*
- 2.1.b** Understand concepts of family categories and types
 - i. May include sub-categories; simple formulas; nested families (annotation and model); and type catalogs.*
- 2.1.c** Differentiate between various types of families
 - i. May include system, component/loadable, and in-place families.*
- 2.1.d** Transfer system families between projects

2.2 Use family parameters

- 2.2.a** Create or delete an instance or type parameter
- 2.2.b** Determine the appropriate parameter discipline, type, and grouping
 - i. May include text, number, Boolean (yes/no), etc.*

2.3 Create family content

- 2.3.a Select the appropriate family template
- 2.3.b Export a family to create a type catalog
- 2.3.c Add reference planes, lines, and dimensions
- 2.3.d Create geometry
 - i. *May include forms, symbolic lines, model lines, and visibility settings.*
- 2.3.e Associate dimensional parameters
 - i. *May include constrain, flex, align, lock, and labels.*

3. Documentation

3.1 Annotate views

- 3.1.a Use Dimensions
 - i. *May include dimension precision; editing witness lines; locking/revealing dimensional constraints; spot dimensions; and custom dimension styles.*
- 3.1.b Create and modify annotation families for documentation
 - i. *May include creating labels; tags; beam annotations and span direction symbols; and calculating values.*
- 3.1.c Create legend views
 - i. *May include creating legends, adding legend components, and modifying legend component properties.*
- 3.1.d Annotate rebar
 - i. *May include single tags and multi rebar annotation tags.*

3.2 Create and use detail components

- 3.2.a Load and create a detail component family
- 3.2.b Add a detail component
- 3.2.c Define a repeating detail

3.3 Demonstrate an understanding of phases and design options

- 3.3.a Use phase filters
 - i. *May include an understanding of graphic display overrides and the use of phase filters.*
- 3.3.b Assign, display, and accept primary design options.
 - i. *May include switching between design options and option sets.*

3.4 Use document revisions

- 3.4.a Understand sheet issues/revisions
 - i. *May include revision numbering; issuing a revision; showing the tag and/or cloud; and settings such as per project/per sheet.*
- 3.4.b Create a revision cloud

3.5 Configure export and print settings

- 3.5.a Configure export settings
 - i. *May include export options, file format, and reports.*
- 3.5.b Configure custom print setup
 - i. *May include hidden line views, saving configurations, and options.*

4. Views

4.1 Apply advanced view techniques

- 4.1.a Understand browser organization
 - i. *May include discipline, phase, and view types.*

4.1.b Set view properties

- i. May include view scale; locking views; view orientation (true north and project north); view range; underlays; temporary view properties; associate levels and views with a scope box; and applying a section box to control the display of a view.

4.1.c Apply visibility/graphic overrides

- i. May include element visibility (including Analytical); filters; graphic overrides for linked files and object styles; and controlling workset visibility.

4.1.d Apply and edit view templates

- i. May include understanding the importance of using view templates; the implications of altering existing view templates; and temporary view properties.

4.1.e Create and manage elevation and call-out views

- i. May include framing elevations, detail views, reference views, and modifying sketch boundaries.

4.1.f Set up a sheet

- i. May include adding a title block, view alignment, guide grids, and adding revisions on sheet.

4.1.g Apply worksharing display modes to a view

4.1.h Use duplicate views

- i. May include understanding the difference between independent and dependent views; creating dependent views; and applying dependent views.

4.2 Manage, create, and modify schedules

4.2.a Develop and customize schedules

- i. May include material takeoff, sheet lists, graphical column schedules, rebar schedules, etc.

4.2.b Manipulate schedule data

- i. May include fields; filters; sorting/grouping; formatting (including conditional formatting); itemize every instance (or not); and adding calculated/combined parameters.

5. Revit Project Management

5.1 Link or import files

5.1.a Understand the difference between imported and linked files

- i. May include CAD files, images, PDFs, and positioning.

5.1.b Manage linked files

- i. May include adding at the proper position, removing, loading, and reloading.

5.1.c Understand the concept of copy and monitor elements from a linked file

- i. May include how to conduct a coordination review.

5.2 Define worksharing concepts

5.2.a Understand why worksharing features are used

- i. May include worksets, central file, file synchronization, element borrowing/relinquishing, and cloud worksharing.

5.3 Use levels and grids

5.3.a Modify level and grid types

5.3.b Edit level and grid properties

- i. May include 2D and 3D level extents.

5.4 Transfer project standards and establish shared coordinates

5.4.a Transfer and review project standards

5.4.b Understand the concept of shared coordinates

- i. *May include an understanding of project and survey points, internal origin, and acquire/publish.*

5.5 Edit object styles

5.5.a Control the appearance of elements at a project level

- i. *May include object styles; line styles (patterns, weights, colors); halftones/underlay; and understanding the element visibility hierarchy and sub categories.*

5.6 Conduct maintenance on a Revit project

5.6.a Understand and use purge

- i. *May include understanding the results of purging a model using Purge All and Purge Selected.*

5.6.b Understand and use the audit and compact tools

- i. *May include an understanding of how to use the tools as well as when and why it is important to use them.*

5.6.c Assess review warnings in Revit

5.6.d Check a model for interferences

- i. *May include understanding the principles and importance of Interference checks.*

5.7 Understand shared, project, and global parameters

- i. *May include understanding the use of shared, project, and global parameters.*