# BIM Modeling with Autodesk Revit Training Course

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Cairo (Egypt)



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## Introduction:

BIM modeling with Autodesk Revit training equips technical professionals with parametric authoring capabilities to produce accurate virtual building assemblies and coordinated documentation. This one-week course prepares design technicians and engineering draftsmen to assemble an audit-ready multi-discipline Autodesk Revit project model with verified parameter sets. Taught at practitioner depth through a hands-on lab mode, the curriculum incorporates the ISO 19650-1:2018 standard governing international information management principles across built assets. Delegates complete this BIM modeling with Autodesk Revit training course with Blackbird Training Centre to standardise operational production workflows.

## Course Objectives:

- Define parametric object hierarchies across Revit categories, families, types, and instances to structure model data.
- Distinguish between type parameters and instance parameters when embedding non-graphical asset data into component schedules.
- Compare project base points against survey points to establish consistent spatial positioning across linked disciplines.
- Select appropriate workset partitioning strategies to balance concurrent user access with central model synchronisation performance.
- Apply standardized Industry Foundation Classes property mappings under ISO 19650-2:2018 to generate compliant open data exchanges.
- Justify phase mapping and design option configurations to evaluate alternative architectural layouts without creating duplicate files.

## Target Audience:

- Architectural production draftspersons responsible for assembling digital building models who must select appropriate parametric family structures.
- Structural design modellers responsible for physical framing representations who must decide between hosted and non-hosted elements.
- Building services drafting technicians responsible for routing mechanical and electrical runs who must evaluate multi-discipline clash resolutions.
- Project document controllers responsible for publishing construction sheets who must determine parameter mapping standards for sheet indexes.
- Junior BIM coordinators responsible for model maintenance who must decide when worksets require segregation or compaction.



## Course Outline:

### Day 1: Parametric Project Setup and Coordinate Alignment

- Project Base Points vs Survey Points: Establishing Georeferenced Coordinates for Multi-Discipline Alignments
- Datum Grids and Levels: Structuring Consistent Vertical and Horizontal Reference Planes
- Core Geometric Elements: Constructing Compound Walls and Layered Floor Assemblies
- View Range Configurations: Defining Primary Range Boundaries and Deep View Depths
- Revit Template Foundations: Standardising Title Blocks and System Family Definitions

### Day 2: Parametric Family Creation and Information Architecture

- Type Parameters vs Instance Parameters: Controlling Dimensional Variances and Asset Attributes
- Generic Model Templates: Building Solid Geometry Using Extrusions and Sweeps
- Shared Parameter Files: Distributing Standardised Information Across Projects and Families
- Formulaic Geometry Logic: Governing Object Dimensions Through Parametric Algebraic Rules
- Nested Component Families: Controlling Subcomponents and Visibility Parameters Efficiently

### Day 3: Multidisciplinary Worksharing and Information Management

- Worksets vs Linked Models: Allocating Ownership Across Multi-User Worksharing Environments
- Central File Synchronisation: Managing Workset Borrowing and Relinquishing Model Permissions
- Common Data Environment Containers: Aligning Autodesk Revit Output with ISO 19650-2 Workflows
- Automated Data Schedules: Generating Quantities of Materials and Embedded Asset Counts
- View Templates and Filters: Standardising Graphic Overrides Across Documentation Drawing Sheets

### Day 4: Model Coordination, Design Variants, and Clash Detection

- Native Interference Checks vs External Coordination: Detecting Geometric Conflicts Directly Inside Models
- Design Options Management: Presenting Iterative Architectural Proposals Within a Single Project
- Phasing and Demolition Statuses: Tracking Lifecycle Development Across Existing and New Elements
- Level of Development Tracking: Documenting Detail Progression from Design to Handover
- Revision Tracking Systems: Managing Cloud Markups and Issue Revisions on Sheets

### Day 5: Practical Modeling Lab and Federated Assembly Build

- Lab Environment Model Setup: Applying Project Coordinates and Discipline Links in Real Time
- Parametric Family Integration: Embedding Custom Building Components into the Model Build
- Federated Interference Resolution: Resolving Multidisciplinary Geometric Clashes Within the Lab Workspace
- Open Data IFC Exports: Exporting Standardized IFC4 Geometry Aligned with ISO 16739-1
- Final Model Build Delivery: Finalising the Coordinated Multi-Discipline Autodesk Revit Project Model



## Skills You Will Gain:

- Parametric Family Creation
- Shared Parameter Management
- Workset Collaboration Management
- Georeferenced Coordinate Positioning
- Multidisciplinary Clash Detection
- View Template Standardisation
- OpenBIM IFC Exporting
- Parametric Quantity Takeoff

## Why Attend This Course:

- From manually drafting fragmented two-dimensional drawings to authoring fully parametric, intelligent virtual assemblies in Autodesk Revit.
- From experiencing coordinate discrepancies during multidisciplinary alignment to establishing consistent project base and survey points across discipline models.
- From struggling with data loss and version confusion to coordinating concurrent worksharing via central models and ISO 19650 container workflows.
- From issuing unverified design packages to generating an audit-ready multi-discipline Autodesk Revit project model with verified parameter sets.

## Conclusion:

Parametric building modeling provides the foundational data engine for modern architecture, engineering, and construction delivery. This course clarifies the operational differences between type and instance parameters, project and survey coordinates, and workset partitioning versus external model linking. Designed for architectural, structural, and mechanical draftspersons seeking structured authoring discipline, this practitioner-level course equips delegates with the practical methods needed to construct coordinated models, enforce data standards, and produce dependable construction documentation across collaborative project environments.

## Frequently Asked Questions FAQ:

### What is BIM modeling with Autodesk Revit training?

BIM modeling with Autodesk Revit training is a hands-on technical course that teaches professionals how to build parametric 3D architectural, structural, and building systems models. It covers model authoring, coordinate setup, parametric component creation, collaborative multi-user worksharing, and standardized construction documentation extraction.



## What is the difference between type parameters and instance parameters in Autodesk Revit?

Type parameters apply common dimensional, material, or operational properties across every occurrence of an object family in a model. Instance parameters modify individual element attributes independently, allowing distinct elevation, length, or identification properties without altering other components of the same family type.

## Which international standards does this Autodesk Revit modeling course follow?

This course adheres to the ISO 19650-1 and ISO 19650-2 standards for information management throughout the asset delivery phase. It also implements buildingSMART openBIM standards, utilizing the IFC4 ISO 16739-1 schema for open-format model exchanges and cross-discipline collaboration.

## Is this Autodesk Revit modeling course suitable for technical CAD draftspersons?

Yes, this course is designed for operational CAD technicians and draftsmen transitioning into parametric building information modeling. It equips participants with the day-to-day authoring competencies, coordinate principles, and component-creation workflows necessary to produce professional, coordinated Revit project files independently.

