



REVIT INITIAL GUIDE

FOR BEGINNERS



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1 Revit interface

1.1 Revit interface and workflow:

The Revit interface is a key aspect of software usability. It is designed to provide architects, engineers and other professionals with an efficient and intuitive construction information modeling (BIM) platform. The interface is divided into several essential components, including the ribbon, the capabilities bar, and the project viewer. The ribbon contains a variety of tools and commands organized into tabs, making it easy to access the functions you need. The options bar displays context-specific settings, allowing users to customize their actions. The project browser is a comprehensive tool that offers a hierarchical view of the entire project, helping users move through the elements efficiently. All of these elements of the Revit interface work together seamlessly to improve overall workflow and user productivity, simplifying the BIM process from conception to completion.

1.2 Revit view of windows and controls:

The Revit display window is a canvas on which users create and manipulate their construction models. This window offers a variety of views, such as floor plans, elevations, compartments, and 3D views, each of which is vital for visualizing and editing models. The controls inside this window are intuitive and powerful. Users can easily zoom in and out, move, and rotate the view to focus on specific parts of the project. Different visual styles and display settings can be customized to improve clarity and understanding of the model. Moreover, the display control bar provides quick access to common display-related commands, while the navigation wheel allows users to accurately orbit and navigate 3D views. These controls allow users to work seamlessly in a 2D and 3D environment.

1.3 Project viewer navigation

The project browser is an indispensable feature in Revit that facilitates efficient navigation and organization of project data. It provides a tree-like hierarchical structure in which all elements of the project are listed and categorized, such as views, sheets, families, and layouts. Users can easily expand and summarize categories to access specific elements or views, simplifying the process of finding and editing project data. In addition, the Project browser allows users to create and manage views, control visibility and graphic settings, and apply filters to isolate certain elements. It is a central hub for project management and control, offering a simplified way to access and manipulate the various components that make up a BIM project. Proper movement and use of the project browser is key to maintaining an organized and efficient BIM workflow.

2 Create a project

2.1 Setting Up Revit:

Before diving into any project in Revit, it's essential to set up the software correctly. This includes configuring units, templates, and project settings to match your specific design requirements. You can choose predefined templates or create custom ones to suit your needs, and ensure that measurement units, discipline (e.g., architectural, structural, MEP), and any additional parameters are correctly established. Properly configuring Revit at the outset streamlines your workflow and ensures that your project adheres to the necessary standards and conventions, making it easier to collaborate with team members and maintain consistency throughout the design process.

2.2 The Wall Command:

Walls are fundamental building components in architectural design, and the Wall command in Revit is the tool that allows users to create and modify them. This command provides a wide range of options for wall types, dimensions, materials, and properties. It enables users to draw walls by simply sketching their desired path and then customizing their properties, such as height, thickness, and structural characteristics. Walls can be straight or curved, and their properties can be adjusted to meet design specifications, making the Wall command a versatile and critical feature for creating the structural framework of a building in Revit.

2.3 Walls - Families, Types, Properties:

Walls in Revit are defined by Families, which are like templates for different wall types. Revit includes a library of pre-defined wall families that can be customized to suit the specific requirements of your project. Each wall family can have multiple Types, representing variations of that family with different dimensions, materials, and properties. These families and types allow you to accurately model the various walls in your design, from interior partitions to exterior facades. Wall properties, such as thickness, material, fire rating, and structural properties, are essential for defining the performance and appearance of walls in your project. By managing wall families, types, and properties effectively, you can create a comprehensive and accurate representation of the building's structure in Revit.

2.4 Windows and Doors:

Windows and doors are key components of any architectural design, and Revit offers dedicated tools for their creation and placement. Users can select from a variety of predefined window and door families or create custom ones to match the specific architectural style and performance requirements of the project. The software allows for precise placement and modification of these building components in walls, including adjustments for opening size, elevation, and swing direction. Window and door properties can be customized, including materials, hardware, and thermal properties. Accurate modeling and placement of windows and doors in Revit are crucial not only for design aesthetics but also for energy analysis, building code compliance, and generating accurate schedules and documentation.

3 Camera Views

3.1 3D Views, Elevations, and Sections:

In Revit, 3D views, elevations, and sections play a crucial role in visualizing and documenting architectural designs. 3D views offer the ability to explore a project from various angles and help stakeholders understand the spatial relationships within the building. Elevations provide a flattened representation of the structure's vertical facets, aiding in the detailing and presentation of façades. Sections are instrumental in revealing the internal components of a building by slicing through it. All of these views are dynamic and linked to the project's model, ensuring that changes to the design are instantly reflected in the views. This seamless integration between views makes Revit an invaluable tool for architects and designers, as it simplifies the process of creating and updating documentation, ultimately leading to more efficient and accurate architectural projects.

3.2 Camera Views, Duplicating Views, and Multiple Views:

Revit allows users to create and customize camera views to capture specific angles and perspectives of their designs. Camera views are highly beneficial for generating compelling visualizations and presentations. Users can duplicate views to experiment with different design options or create variations for specific purposes. This feature is useful for design development and comparison. Additionally, multiple views can be created and organized efficiently, ensuring that various aspects of the project are well-documented. This versatility empowers designers to produce a range of visuals and documentation, from conceptual renderings to detailed construction drawings, all within a single, integrated platform.

3.3 Sheet Creation and Modification:

In Revit, sheet creation and modification are essential for producing comprehensive project documentation. Users can generate sheets that serve as containers for views, schedules, and other project data. These sheets are critical for creating construction document sets that meet industry standards. Users can customize sheet sizes, titles, and numbering schemes to adhere to project requirements. Furthermore, Revit's intelligent view placement ensures that views automatically update on sheets when design changes occur, minimizing the risk of errors and ensuring that the documentation remains current. This feature greatly streamlines the process of producing plans, sections, elevations, and schedules for a project, enhancing accuracy and efficiency in the documentation phase of architectural design.

4 Architectural Elements

4.1 Floors:

Floors are a fundamental aspect of architectural design and are efficiently managed in Revit. The software provides tools for creating, modifying, and analyzing floor elements, allowing architects and designers to model everything from structural floor slabs to interior floor finishes. Revit offers precise control over floor thickness, material properties, and structural characteristics, which are crucial for both aesthetics and structural integrity. Additionally, the software's parametric capabilities enable users to easily adjust and adapt floor elements as the design evolves. The ability to create floor openings and control their relationships with other elements in the model makes Revit an indispensable tool for producing accurate and coordinated building designs.

4.2 Roofs:

Roof design in Revit is a seamless and efficient process. The software offers a wide range of tools for creating and customizing roofs, including flat roofs, gable roofs, hip roofs, and more complex roof forms. Revit's parametric capabilities enable users to adjust roof shapes, slopes, overhangs, and materials with ease, ensuring that the roof design aligns with the architectural vision. The software's automatic connections to walls and other building components guarantee that the roof integrates correctly with the rest of the structure. Furthermore, Revit provides powerful tools for analyzing roof systems, helping architects and engineers assess structural integrity and performance. This comprehensive approach to roof design makes Revit an invaluable resource for producing roofs that are both functional and aesthetically pleasing.

4.3 Ceilings:

Ceilings are an often-overlooked but essential element in architectural design, and Revit offers the tools to create and manage them efficiently. The software allows users to model ceiling elements, define their properties, and control their relationship with walls and other building components. With Revit's parametric capabilities, designers can easily adjust ceiling heights and shapes to accommodate various design requirements. Moreover, Revit enables users to apply different materials and finishes to ceilings, enhancing the overall aesthetics of a space. By incorporating ceilings into the BIM model, architects and designers can accurately visualize and document interior spaces, ensuring that the design aligns with the intended aesthetic and functional goals. This integrated approach to ceilings simplifies the process of creating a comprehensive and coordinated building design.

5 Components and Toposurface

5.1 Components:

In the realm of architectural design and BIM, components are the building blocks that make up a structure. Revit provides a robust framework for creating, modifying, and managing a wide array of components, including walls, floors, doors, windows, and more. These components are parametric, meaning they can be customized in terms of size, materials, and other properties, allowing for precise control over their appearance and performance. Components are crucial for modeling and documenting the physical aspects of a building and are at the core of Revit's BIM approach. The software's database-driven nature ensures that any changes made to components are reflected throughout the project, enhancing coordination and accuracy in the design and construction process.

5.2 Stairs and Railings:

Stairs and railings are integral elements in architectural design, both in terms of functionality and aesthetics. Revit's tools for creating stairs and railings offer architects and designers the flexibility to design and customize these elements to meet specific project requirements. Users can define the stair type, including the number of risers, tread depth, and materials. Railings can be customized for both safety and style, and they automatically adapt to the shape of the stairs and any associated platforms. Revit also provides tools for the creation of various types of stairs, from straight runs to spiral staircases, and ensures that these elements conform to building codes and standards. This level of control and precision in modeling stairs and railings makes Revit an indispensable platform for designing functional and visually appealing building interiors.

5.3 Site Toposurface and Planting:

In architectural and site design, the natural environment plays a vital role, and Revit acknowledges this importance by offering tools for creating site elements like toposurfaces and plantings. With the toposurface feature, users can generate realistic site terrain, accounting for slopes, contours, and grading. The software's editing tools make it easy to adjust the toposurface to reflect site changes accurately. Additionally, Revit supports the placement of planting components, allowing designers to incorporate trees, shrubs, and other vegetation into the site design. These planting components can be customized in terms of species, size, and materials, enhancing the visual representation of the landscape. Revit's integration of site design with building design ensures a holistic and coordinated approach to architectural projects, helping architects and landscape designers create harmonious and functional environments.

6 Rooms, Visualization and Graphic Control

6.1 Rooms:

In architectural design, defining and managing rooms is essential for space planning, analysis, and documentation, and Revit offers robust tools for this purpose. Users can create and customize rooms within their building models, assigning properties such as room name, number, area, and occupancy. Rooms in Revit automatically adapt to design changes, ensuring that spatial data remains up to date throughout the project. The software also supports room schedules, enabling users to generate room-specific information for documentation and analysis. The ability to visualize and analyze spaces within the building model makes Revit a valuable asset for architects and designers, aiding in tasks ranging from area calculations and code compliance to interior design and space optimization.

6.2 Rendering:

Revit provides a rendering environment that empowers architects and designers to transform their 3D models into stunning, photorealistic visualizations. With a range of rendering settings, materials, lighting options, and camera controls, users can create compelling images and animations that convey the design's intent and aesthetics. Revit's rendering engine enables the realistic depiction of materials, textures, lighting effects, and environmental conditions, making it an invaluable tool for design presentations and client communication. Whether for design development, marketing materials, or project reviews, Revit's rendering capabilities allow professionals to convey the beauty and functionality of their architectural designs effectively.

6.3 Visibility Graphics:

Controlling the visibility of elements in a building model is essential for producing clear and organized documentation. Revit's Visibility Graphics feature provides users with the tools to precisely manage the visibility of various model elements in different views, including plans, sections, and 3D views. Users can create and customize view templates, apply view-specific overrides, and tailor the display of elements according to project requirements. This capability ensures that elements like walls, doors, and structural components are displayed accurately in each view, enhancing the clarity and readability of the design documentation. Revit's flexible Visibility Graphics settings allow architects and designers to produce well-organized, information-rich documents that are vital for construction, coordination, and project communication.

6.4 Detailing and Annotating:

Detailing and annotating are essential aspects of architectural design documentation in Revit. The software provides a comprehensive set of tools for adding text, dimensions, symbols, and detailing components to your project, ensuring that design intent is accurately conveyed and construction information is clearly communicated. Users can customize annotation styles, apply dimensioning standards, and create detail components, all while maintaining a strong link to the underlying model. This not only streamlines the documentation process but also allows for real-time updates when design changes occur. The precision and versatility of Revit's detailing and annotating features make it a powerful tool for producing accurate and comprehensive construction documents that contribute to successful building projects.

7 Revit MEP

7.1 Introduction to Revit MEP Browser and Ribbon:

Revit MEP is a powerful tool for mechanical, electrical, and plumbing (MEP) engineers, and getting acquainted with the browser and ribbon interface is the first step in harnessing its capabilities. The browser provides a hierarchical view of the project components, making it easy to access and manage system families, equipment, and spaces. The ribbon, organized into tabs, offers a wealth of tools and commands for designing, analyzing, and documenting MEP systems. From creating HVAC ducts to placing electrical devices, the browser and ribbon in Revit MEP streamline the design and analysis of MEP systems, enhancing the productivity and efficiency of engineers in the building services industry.

7.2 Spaces:

Spaces are a fundamental concept in Revit MEP, allowing engineers to define and analyze the functional areas within a building. With Revit's space creation and management tools, engineers can specify attributes like occupancy, temperature, and airflow requirements, which are essential for load analysis and HVAC system design. Spaces are also instrumental for calculating heating and cooling loads, ensuring that the building's mechanical systems are appropriately sized and that indoor environmental conditions meet comfort standards. By incorporating spaces into the BIM model, Revit MEP provides a comprehensive approach to MEP system design and analysis, ultimately resulting in more efficient and effective building services.

7.3 Electrical:

Revit MEP offers a range of tools and capabilities for electrical system design. Electrical engineers can use the software to model and specify electrical distribution components, create lighting layouts, and define power and lighting circuits. Revit MEP also provides load analysis and power calculations, ensuring that electrical systems meet the building's requirements while adhering to industry standards. With the ability to design electrical systems in coordination with other disciplines, Revit MEP fosters collaboration and minimizes clashes in the MEP systems. It offers a platform that facilitates the comprehensive design and documentation of electrical systems, contributing to the success of electrical engineering projects.

7.4 Electrical Lighting System:

The lighting system is a critical aspect of any building's design, and Revit MEP facilitates the design, analysis, and documentation of electrical lighting systems. Engineers can use the software to create lighting fixtures, define lighting parameters, and calculate illuminance levels to ensure that spaces are well-lit and meet lighting standards. With Revit MEP, users can simulate lighting effects and conduct lighting analysis to optimize the placement and performance of lighting fixtures. The software's integrated approach ensures that lighting design is coordinated with other MEP systems, preventing clashes and errors in the building's construction. Revit MEP provides the tools necessary for electrical engineers to create efficient, visually appealing, and compliant lighting systems within the BIM framework.

7.5 HVAC:

HVAC (Heating, Ventilation, and Air Conditioning) systems are vital for indoor comfort and air quality, and Revit MEP offers a comprehensive suite of tools for designing, analyzing, and documenting these systems. Engineers can model HVAC components such as ducts, pipes, equipment, and air terminals while specifying airflow rates, pressure drops, and system properties. The software supports load analysis and energy calculations to ensure that the HVAC system meets the building's heating and cooling requirements while maximizing energy efficiency. Revit MEP's integrated environment enables close coordination with architectural and structural elements, reducing clashes and improving the efficiency of MEP system design. By incorporating HVAC design into the BIM model, Revit MEP enhances the accuracy and effectiveness of HVAC engineering projects, contributing to better indoor environments in buildings.

