

REVIT ARCHITECTURE – SHORT NOTES

Quick revision notes for students, beginners and CAD/BIM training

1. Introduction to Revit Architecture

- Autodesk Revit is Building Information Modeling (BIM) software used for architectural design, documentation and coordination.
- Revit works with a **parametric building model**. Changes made in one view are generally reflected in other related views.
- Common uses include floor plans, elevations, sections, 3D views, schedules, construction documentation and presentation drawings.

2. BIM Concepts

- **BIM:** Building Information Modeling is a digital representation of a building containing geometry and information.
- **Parametric modeling:** Elements are controlled by parameters such as dimensions, constraints, materials and relationships.
- **Family:** A group of related elements with common parameters and graphical representation.
- **Type:** A predefined variation of a family. **Instance:** A placed element in the project.

3. Revit Project Structure

- **Project:** The main building model file.
- **Levels:** Horizontal reference planes used to define building floors and vertical organization.
- **Grids:** Reference lines used to establish structural and planning locations.
- **Views:** Floor plans, ceiling plans, elevations, sections, 3D views, schedules and sheets.
- **Sheets:** Drawing layouts used to arrange views for printing or documentation.

4. Basic Architectural Elements

- **Walls:** Used for exterior/interior partitions; can be edited by type and instance properties.
- **Doors and Windows:** Usually loaded as component families and hosted in walls.
- **Floors:** Created from boundary sketches and can contain layers/material information.
- **Roofs:** Can be created by footprint, extrusion or other roof modeling methods.
- **Ceilings:** Used for reflected ceiling plans and interior documentation.
- **Stairs and Railings:** Parametric elements used to model vertical circulation.
- **Columns:** Architectural or structural columns can be placed according to project requirements.

5. Important Tools

- **Modify:** Select, move, copy, rotate, mirror, align, trim/extend, offset and array elements.
- **Measure:** Used for temporary measurements and checking distances.
- **Align:** Aligns elements to a reference line or edge.
- **Offset:** Creates a parallel copy at a specified distance.
- **Array:** Creates multiple copies in a linear or radial arrangement.

- **Match Type Properties:** Transfers the type of an element to another compatible element.

6. Levels, Grids and Constraints

- Levels establish important elevations such as Ground Floor, First Floor and Roof Level.
- Grids help maintain consistent column/wall locations and improve coordination.
- Constraints control relationships between elements. Typical constraints include dimensions, alignment, locking and attachment.
- Use constraints carefully because excessive constraints can make a model difficult to edit.

7. Families

- **System Families:** Built into Revit, such as walls, floors, roofs, ceilings and views.
- **Loadable Families:** Created or loaded into projects, such as doors, windows, furniture and fixtures.
- **In-Place Families:** Custom elements modeled specifically inside a project.
- Family parameters may be type-based or instance-based and can control geometry and information.

8. Views and Visibility

- Each view can have its own scale, detail level, visibility settings and graphic representation.
- **View Range:** Controls the vertical range displayed in a plan view.
- **Visibility/Graphics:** Controls visibility and graphical settings for categories in a view.
- **Section:** Shows a cut through the building.
- **Elevation:** Shows an orthographic exterior/interior view.
- **3D View:** Displays the model spatially and is useful for checking design.

9. Materials

- Materials define the appearance and physical information of building elements.
- Material settings can include identity information, graphics, appearance and physical properties.
- Materials are useful for realistic visualization, documentation and quantity-related information.

10. Rooms and Areas

- **Rooms** are used to identify and document spaces such as bedroom, kitchen, office or lobby.
- Room information can include name, number, area and other parameters.
- **Room Tags** display selected room information in views.
- Area plans can be used for broader space-planning and area calculations.

11. Schedules and Quantities

- Schedules are tabular views that extract information from the building model.
- Common schedules include door schedules, window schedules, room schedules and material takeoffs.
- Schedules can be sorted, filtered and formatted for documentation.

12. Sheets and Documentation

- Views are placed on sheets to create printable drawing sets.
- Title blocks provide project and sheet information.

- Typical architectural documentation includes plans, elevations, sections, details, schedules and 3D views.
- Use consistent view naming, scales and sheet organization for professional documentation.

13. Rendering and Presentation

- Revit provides tools for visual presentation, including realistic materials, lighting and rendered views.
- 3D views can be used to review the design before producing final presentation images.
- Camera views are useful for interior and exterior perspectives.

14. Project Coordination

- Revit supports coordination between architectural, structural and MEP disciplines.
- Linked models can be used when different disciplines are maintained in separate project files.
- Coordination should include checking levels, grids, openings, clearances and major element locations.

15. Worksharing – Basic Concept

- Worksharing allows multiple users to work on a central project environment.
- **Central Model:** Shared project model used for collaborative work.
- **Local Model:** A user's working copy connected to the central model.
- Users should synchronize regularly and follow the project's collaboration standards.

16. Useful Shortcuts

- **WA** – Wall
- **DR** – Door
- **WN** – Window
- **LL** – Level
- **GR** – Grid
- **DI** – Aligned Dimension
- **MV** – Move
- **CO** – Copy
- **RO** – Rotate
- **MM** – Mirror
- **AL** – Align
- **TR** – Trim/Extend

17. Best Practices

- Set units, levels and project standards before detailed modeling.
- Use meaningful names for views, levels, grids, families and sheets.
- Prefer native parametric elements over unnecessary imported geometry.
- Keep the model clean and avoid duplicate or unused content.
- Check plans, sections and 3D views regularly to identify modeling errors.
- Use appropriate detail levels and view scales for documentation.

REVIT ARCHITECTURE – QUICK REVISION

Topic	Remember
BIM	Digital building model containing geometry + information
Level	Horizontal reference for building elevations
Grid	Reference system for planning and coordination
Family	Parametric group of related elements
Type	Definition/variation of a family
Instance	Actual placed element
View	Representation of the model for a specific purpose
Sheet	Printable drawing layout
Schedule	Tabular extraction of model information
Room	Defines and documents building spaces
Worksharing	Collaborative project workflow

Note: Revit features and keyboard shortcuts can vary by version, workspace and customized shortcut settings.