

BimSrv Academy

PROJECT 01

TWO-FLOOR RESIDENTIAL HOUSE

ARCHITECTURAL PROGRAM

Learner Reference | Revit 2024 | BA_2024_AR.rte

1. Project Overview

Project 01 is a two-floor residential house used to introduce and progressively develop the professional Revit/BIM workflow. The learner is not provided with a completed floor plan to trace. The building is developed from the architectural program and the dimensional information introduced during the lessons.

The project combines architectural modelling, prescribed RCC structural modelling, interior-development conditions, BIM information and documentation. The objective is to learn how a coordinated Revit project develops from spatial requirements into a model and drawing set.

2. Learning Intent

- Develop a building from an architectural program rather than tracing a finished plan.
- Use dimensions as active modelling controls and understand how Revit geometry responds to dimensional changes.
- Work with explicitly entered metric or imperial dimensions when required by source information.
- Develop architectural spaces, openings, floors, stairs, ceilings, interior conditions and a glazed roof as coordinated BIM elements.
- Model and coordinate the prescribed RCC structural system without treating the course as structural engineering design.
- Check the model continuously in plan, section and 3D using the Build → Check → Correct → Continue workflow.

3. General Building Description

Project Type	Residential House
Storeys	Two floors
Primary Course Platform	Autodesk Revit 2024
Course Template	BA_2024_AR.rte
Structural System	Prescribed RCC structural system
Design Method	Progressive development from program and lesson dimensions; no completed plan is supplied for tracing

4. Ground Floor Architectural Program

The Ground Floor is organised around a central Living / Dining Room. Two bedroom suites are positioned on opposite sides of this central space. Each bedroom suite includes its own Bedroom, Dressing and Bath.

Required Spaces

- Living / Dining Room — the principal central living space and the organising element of the Ground Floor.
- Bedroom Suite #1 — Bedroom #1 + Dressing #1 + Bath #1.
- Bedroom Suite #2 — Bedroom #2 + Dressing #2 + Bath #2.
- Kitchen — connected functionally to the Living / Dining area.
- Entry and Stair Hall — principal arrival and vertical-circulation space.

Key Planning Relationship

BEDROOM SUITE #1 ← LIVING / DINING ROOM → BEDROOM SUITE #2

Bath #1 and Dressing #1 are integral parts of Bedroom Suite #1. Bath #2 and Dressing #2 are integral parts of Bedroom Suite #2; they are not common/shared facilities.

5. Dimension-Driven Design Approach

The first practical modelling exercise begins with Bedroom #1. Walls are created to establish the room, after which Revit temporary dimensions are used to resize and control the geometry.

- Bedroom #1 is deliberately developed using imperial dimensional input.
- Bedroom Suite #1 is then extended to include Dressing #1 and Bath #1 using the prescribed imperial dimensions.
- The subsequent plan continues to use the lesson's prescribed imperial dimensional input.
- The exercise demonstrates that Revit can interpret appropriately formatted dimensional values in metric or imperial units without requiring the learner to manually convert every value before entry.
- The project retains the unit/display settings prescribed by the course; entering an explicit dimension in another supported unit does not mean the entire project must first be changed to that unit system.

6. Ground Floor Development Sequence

- Set up the project, geographical location and levels.
- Create and resize Bedroom #1 using temporary dimensions.
- Develop Dressing #1 and Bath #1 to complete Bedroom Suite #1.
- Develop the central Living / Dining Room.
- Create Bedroom Suite #2 on the opposite side using appropriate repetition/mirroring followed by project-specific modification and checking.
- Develop the Kitchen.
- Develop the Entry and Stair Hall.
- Add and coordinate doors and windows.
- Model the prescribed cast-in-situ RCC staircase.
- Check the Ground Floor in plan, section and 3D before continuing.

7. First Floor Program

The First Floor is developed during the course in accordance with the prescribed lesson dimensions and relationships. It must coordinate with the Ground Floor, Stair Hall, vertical circulation and the open/double-height conditions established by the project.

The exact First Floor room arrangement and dimensional development are introduced through the relevant course lessons rather than being supplied as a completed plan in this Architectural Program.

8. Stair Hall and Glazed Roof

- The project includes a cast-in-situ RCC staircase connecting the two floors.
- The Stair Hall is coordinated with the First Floor opening and surrounding architectural construction.
- A glazed roof is provided over the Stair Hall.
- The glazed roof is developed as an architectural roof/building-envelope condition and checked in plan, section and 3D.
- The learner must coordinate the glazed roof with the Stair Hall, upper-floor opening, supporting construction and surrounding roof/terrace conditions.

9. Floors, Openings and External / Upper-Level Conditions

- Ground and First Floor slabs are modelled as prescribed.
- Required openings for the staircase and open/double-height conditions must be preserved and coordinated.
- Roof/terrace and parapet conditions are developed where prescribed by the course.
- Vertical relationships must be checked in working sections and 3D rather than only in plan.

10. Ceilings and Architectural Lighting

- Project 01 includes architectural ceilings in the prescribed spaces.
- Ceiling types and heights are developed and reviewed through Reflected Ceiling Plans (RCPs).
- Prescribed light fixtures are placed and coordinated with ceiling geometry and room layout.
- Light fixtures are included as part of the architectural ceiling/RCP workflow.
- Electrical circuiting, electrical load calculations and electrical-system design are outside the scope of Project 01.

11. Wall Panelling and Interior Development

- Selected project areas include prescribed wall panelling.
- Wall panelling is developed using an appropriate Revit modelling/detailing method suited to the required information and Level of Detail.
- Panelling must be coordinated with openings, materials, corners and relevant interior elevations.
- The learner should avoid unnecessary 3D complexity where the required information can be communicated more effectively through an appropriate detail method.

12. RCC Structural Modelling Scope

Project 01 includes the prescribed RCC structural model so that the learner experiences architectural/structural BIM coordination within the same project workflow.

- RCC columns.
- RCC beams.
- RCC structural slabs.

- Foundations / footings as prescribed.
- Cast-in-situ RCC staircase and related structural conditions.
- Required structural openings and relationships to the architectural model.

Scope limitation: The learner models the structural system prescribed by the course. Structural analysis, engineering design, reinforcement design and structural member sizing calculations are not taught or assessed.

13. Architectural / Structural Coordination

- Coordinate RCC columns with walls, openings and room planning.
- Coordinate beams and slabs with architectural floor and ceiling conditions.
- Coordinate the RCC staircase with floor levels, landings and openings.
- Check structural and architectural relationships in plan, section and 3D.
- Correct identified conflicts before continuing to documentation.

14. BIM Information and Documentation

- Rooms are placed, named, numbered and checked for enclosure.
- Door, window and room information is developed for schedules.
- Plans, Reflected Ceiling Plans, elevations, sections and 3D views are created as required.
- View Templates are introduced when repeated view-control requirements make them appropriate.
- Dimensions, tags, text, callouts and details are developed from the coordinated model.
- Schedules are used both as documentation and as BIM-data QA tools.
- The project is assembled into the prescribed sheet/drawing set and reviewed before issue.

15. Information Provided to the Learner

- This Architectural Program.
- BA_2024_AR.rte course template.
- Course-folder ZIP and folder structure.
- Lesson-by-lesson dimensional information and modelling instructions.
- Prescribed family/resources where required.
- Reference diagrams, sections, images or details where a lesson requires them.
- RCC structural reference/layout information required for the modelling exercise.
- Ceiling/RCP, wall-panelling and glazed-roof references where prescribed.

16. What Is Not Provided

- A completed architectural floor plan for the learner to trace.
- A completed Revit model to copy instead of developing the project.
- Structural engineering calculations or a structural-design exercise.
- Electrical design, circuiting or load calculations.
- IFC export requirements.

17. Expected Project 01 Outcomes

- A coordinated two-floor residential architectural BIM model.
- A prescribed RCC structural model coordinated with the architecture.

- Correct Ground Floor planning with two bedroom suites around the central Living / Dining Room.
- A coordinated Kitchen and Entry / Stair Hall.
- Cast-in-situ RCC stair, slabs, openings and upper-level conditions.
- Glazed roof over the Stair Hall.
- Ceilings and architectural light fixtures coordinated through RCPs.
- Prescribed wall-panelling and interior-development conditions.
- Rooms and BIM information suitable for schedules and documentation.
- A controlled set of views, annotations, details, schedules and sheets.
- Required RVT, PDF and DWG outputs where instructed.

18. Project 01 Completion Check

- ☐ Project created from BA_2024_AR.rte and saved in the correct working-model folder.
- ☐ Geographical location and levels established.
- ☐ Bedroom #1 and Bedroom Suite #1 developed using the prescribed dimension-driven workflow.
- ☐ Living / Dining Room and Bedroom Suite #2 correctly related.
- ☐ Kitchen and Entry / Stair Hall complete.
- ☐ Doors, windows and RCC stair coordinated.
- ☐ First Floor and open/double-height conditions complete as prescribed.
- ☐ Floors, openings, roof/terrace/parapet conditions checked.
- ☐ Glazed Stair Hall roof complete and coordinated.
- ☐ Ceilings and architectural light fixtures complete and checked in RCP/section.
- ☐ Wall panelling complete at prescribed locations.
- ☐ RCC structure complete and coordinated with architecture.
- ☐ Rooms, views, schedules and documentation checked.
- ☐ Project QA completed before milestone/submission.