

## BIM reference model

The "**BIM reference model**" serves as the basis for the documentation and testing of BIM processes. It is a simplified 3D model that demonstrates specific requirements and standards for the BIM process. Its content and structure are designed to test and improve collaboration, interoperability, and quality in BIM projects.

### Acknowledgements

Special thanks go to all those who have supported the development of this model in various ways, in particular:

- Architect Prof. DI Jürgen Hager for the structural engineering support.
- Dipl.-Ing. Jan Morten Loës, M.Sc., Head of Research and Development at VIE Build GmbH, expert in BIM and GIS, for producing the georeference.
- my colleague Christian Klug for his significant contribution to the modelling.
- the Federal Chamber of Architects and Chartered Engineering Consultants for their initiative and support in the project.
- the GRAPHISOFT Germany team for their technical support.

### General information

- **Project description:**
  - The BIM reference model serves as a simplified, standardised basis for planning and coordination in the architectural process. It comprises the essential geometric and semantic elements of a building, e.g., walls, ceilings, windows, doors and structural elements, in a harmonised level of detail (LOIN).
  - The model contains relevant information such as materials, component dimensions and specific parameters that do not, however, fulfil all the requirements of the BIM process. It forms a basis for checking model quality, interoperability and data consistency in data exchange (especially in IFC format).
  - The reference model also enables the validation of planning processes, the performance of clash checks and coordination between disciplines such as architecture, structural design and building services. It therefore forms a stable basis for



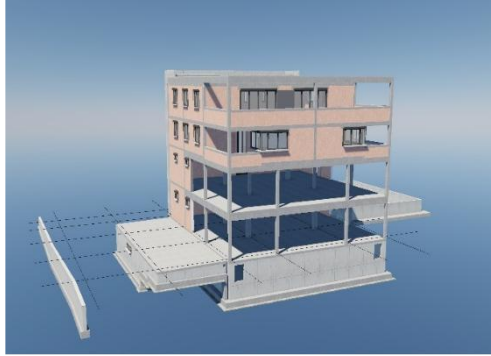
planning steps in the simulated BIM project and the smooth collaboration of all parties involved.

- The objectives include testing the BIM workflows, data transfer, collaboration and quality assurance.
- The project zero for the plan representation is at floor level (FBOK=+-0.00) on the ground floor. The storey boundary is however according to ÖNORM A 6240-2, the floor boundary is at the upper edge of the respective bare ceiling (RDOK=-0.20 on the ground floor).
- The outdoor facilities are generally to be seen as placeholders for further processing in the integral planning process.
- The 2-dimensional plan representations of the project phases preliminary design, design, submission planning and execution planning are exemplary with the aim of reading all relevant information directly from the elements and displaying it on the plan. The parallel representation of all phases in a single model requires adjustments and compromises.

- **Modelling software Data export and IFC version:**

- The modelling is based on Archicad version 28.1.1 (Build 4100) AUT FULL including the "library packs", which replaces the object libraries of previous ArchiCAD versions.
- The architectural model can be made available to all parties involved in the IFC standard for open communication in OPEN BIM, depending on the authoring software of the addressee using the respective translator. Other export formats are the SAF interface for structural design, .XLSX, .XML and many others.
- The enclosed IFC file export is essentially limited to the QTO\_[...]BaseQuantities and properties from the element-dependent Pset\_ [...]Common such as fire protection, position, status, load-bearing function as well as material and various other element-specific properties. Numerous translators are available in the programme for further file exports corresponding to the most diverse use cases. No model filters were set and therefore all elements in the model were exported.

Neuhofen, 30/05/2025  
Arch. Prof. DI Siegfried Diesenberger



*Model representation in perspective, in sectional view and as a structural model. | All rights reserved.*