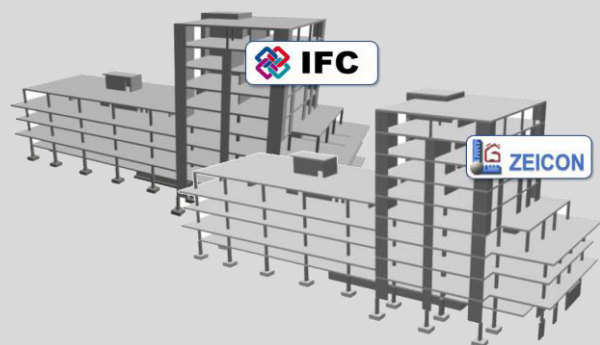


ZEICON-IFC

IFC-Interface for ZEICON
11.11.536 IFC-Interface

Engineering-CAD for Formwork & Reinforcement

- Direct data exchange with other CAD systems on IFC basis
- Model transfer of spatial component information and arrangement
- Representation of the imported geometry data in the ZEICON Viewer
- Secure data exchange through a standardized exchange format
- Support of IFC formats 4.0 and 2x3
- Postprocessing of component information for structural models e.g. for wall connections & system lines

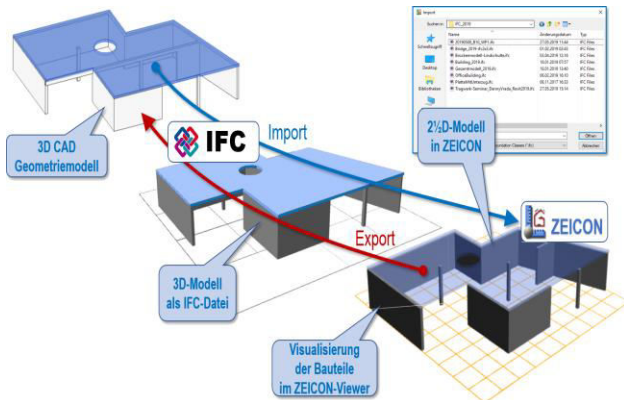


The IFC interface supports data exchange from digital building models (Open BIM) in civil engineering via IFC files, which contain component information in an open standard. When importing or exporting the IFC data, a direct assignment to the components known in ZEICON is made from the geometry description.



Telefon: +49 711 7873-157
E-Mail: tragwerksplanung@rib-software.com
www.rib-software.com/tragwerksplanung

RIB Software GmbH
Managing Directors: René Wolf and Tobias Hamacher
Headquarter Stuttgart, Local Court Stuttgart HRB 783426.



Open-BIM-Integration for ZEICON

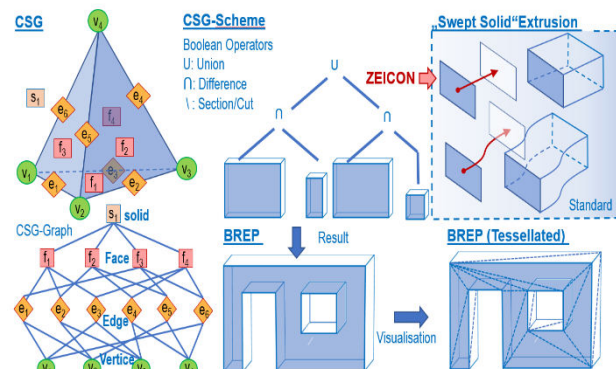
By importing IFC data, ZEICON can be integrated into the workflow of BIM projects (Building Information Modeling). The data transfer with IFC files (Industry Foundation Classes, file name.ifc) is standardized and open to all participants in the BIM process. In the standard setting, 3D objects are mapped and transferred as "swept solids" via the extrusion process.

In contrast to a direct data transfer, for example, using a plugin in a CAD system, the CAD objects in an IFC file are often transferred differently from the original mapping. For ZEICON the method of description of the components in the IFC file is of high importance. ZEICON uses the standardized extrusion process to generate spatial components from 2D information. In many cases, the procedure is similar in other CAD systems and the content of an IFC file is also very similar to the approach used in ZEICON.

In general, 3D CAD systems work with geometric primitives such as cubes, pyramids, cylinders, cones, spheres, etc. and define the context of a complex geometry as boundary representation (BREP) using constructive solid geometry (CSG)

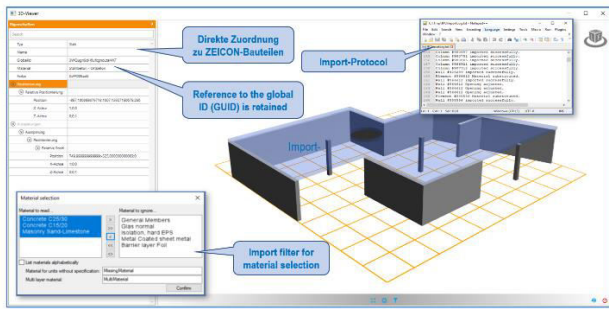
and Boolean operations (CSG). In many cases, only the result is transferred as a BREP in the IFC file, but the relationship between the geometric derivation is lost during this process. BREPs are often also transferred with triangles as enveloping surface models (tessellated-tes BREP) because this form of the solid model is generated for high-quality visualization.

From the boundary surface model (BREP), it is no longer possible to reconstruct backward which basic bodies and combination schemes led to the existing geometry. This applies to ZEICON and also to general 3D CAD systems. If a geometry consists of base bodies and extrusion bodies ("swept solids"), these should also be exchanged in IFC syntax in order to achieve the highest possible transfer quality.



Various IFC versions of the object-oriented exchange format are now in use. By using central program components for data transfer, the ZEICON interface ZEICON-IFC supports the current versions 4.0 and 2x3. This means that transfer is possible in the current IFC versions.

Product Information



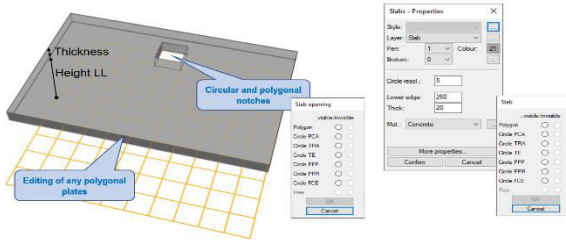
Controlled data import

When transferring IFC data to ZEICON, it is possible to filter the transferred objects via the material selection. This means, for example, that only the load-bearing components without insulation, wall or floor cladding can be read in if required. In BIM models, stories or component groups are often used which are not always unambiguous in the transmission. By assigning the objects to a foil (layer) for each elevation cost, this information can be further used and administered comparably in ZEICON.

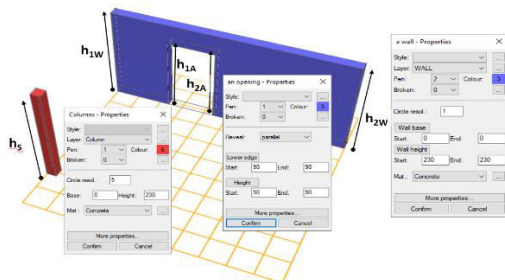
A log shows which information was transferred and which was not. This is, e.g., quickly recognizable if a transfer was possible for objects as a boundary surface model (BREP) or not. The spatial arrangement of the transferred components can be visualized in the new ZEICON viewer. The adopted IFC objects and their global identification (GUID) can be graphically selected in the ZEICON viewer and displayed with the component properties.

Building Components

ZEICON knows components such as columns, beams, walls and slabs. These components are generated with their construction-specific parameters and can be displayed in the 3D view. With the help of the associative section generation, sections can be generated from components, which are automatically adapted each time the components are changed.



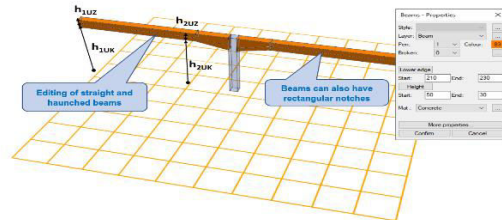
Component plate: In ZEICON, slabs can be transferred and further processed as polygonal and circular edged slabs with corresponding recesses. The spatial position or dimension is defined by the lower edge and component thickness.



Components Wall and Columns: When transferring straight and round walls in ZEICON, openings and wall slots with different heights and component heights at the beginning and end can be considered. Rectangular and round columns can

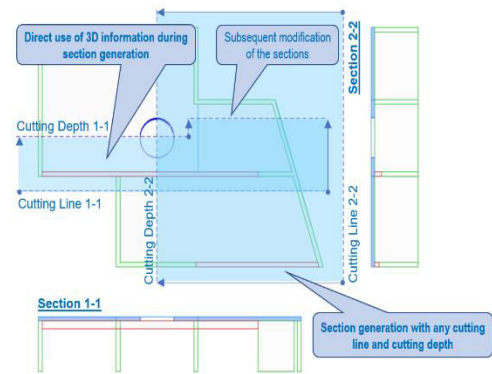
also be transferred with different heights and component heights.

Beams as down stand/upstand: Straight beams can be transferred as joists and covers independently of a ceiling slab. Cove and rectangular recesses can be taken into account.



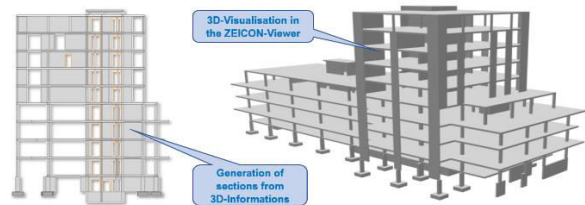
Associative Section Generation

ZEICON can generate associative sections for components such as beams, walls, columns, and slabs. Changes to the components regarding parameters and position in the ground plan are immediately visible in the section. The position of the section line and the section depth determine which objects are displayed in a section. The section course is freely defined polygonally and can also be changed later.



Examples

If the CAD models have a corresponding proportion of basic or extrusion bodies, ZEICON can also transfer complete models in a good quality.



Remark: Even small inaccuracies in the 3D design can lead, e.g. when objects are penetrated, to bodies being described as enveloping surfaces and the transfer becoming difficult.

