

1.5 Structure IFC data schema

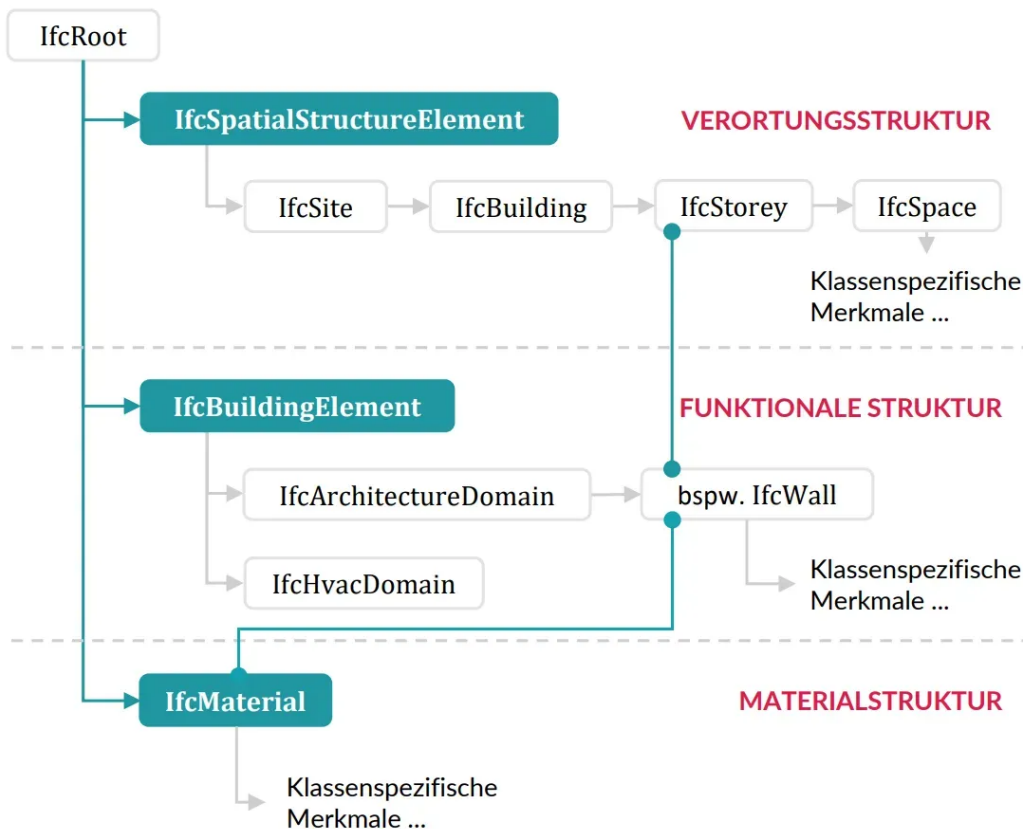
Quote: [BIMcert Handbuch 2023](#)

"IFC is integrated into all common BIM applications. Certification of the software by buildingSMART international guarantees consistently high transmission quality. All functional elements are linked to floors and therefore also belong to a structure. In addition to alphanumeric (attributes, parameters and characteristics) and geometric information, an IFC file also contains relationships between objects. The IFC specification uses three structures: the location structure, the functional structure and the material structure. The location structure defines the spatial structure of a structure in IFC. This declares the land to be built on, the buildings to be constructed on it, the floors of these buildings and the rooms on each floor. Structures are represented within the functional structure by breaking them down into different classes of functional elements: e.g. walls, ceilings, columns, doors or windows. Each element (element instance) is assigned a unique identifier (GUID)".

Wie funktioniert IFC?

Der Aufbau der Datenstruktur.

IFC4.0



Source: [BIMcert Handbuch 2023](#)

Each functional element class is optimized for the representation of its functional domain. To do this, it carries a set of standardized basic characteristics describing the relevant properties (parameters) and its typical geometry (attributes). Features are organized into Property-Sets. Each element class has a typical Pset, which carries the most important characteristics. This Pset is designated by the suffix "Common", e.g. Pset_WallCommon or Pset_DoorCommon. All functional elements are linked to floors and therefore also belong to a construction. In addition to alphanumeric (attributes, parameters and characteristics) and geometric information, an IFC file also contains object relationships. In addition to the location structure and

the functional structure, the IFC data structure also contains a material structure for declaring material properties.

The alphanumeric file format is structured in two sections. The HEADER section, which contains information about the file, and the DATA section, which contains information about the project. Below is an extract from the structure of an IFC schema:

```
ISO-10303-21;HEADER;  
FILE_DESCRIPTION(('ViewDefinition [DesignTransferView_V1.0]',  
'ExchangeRequirement [Architecture]'), '2;1');FILE_NAME('Export_V2',  
'2021-07-12T14:53:51',(''),('',''),'','cadwork','');FILE_SCHEMA(('IFC4'  
));ENDSEC;DATA;#1= IFCPROJECT('1a$RL01_H3_giBD$G0XTyj',#7,  
'Default Project','Description of default Project',*,*,*,(#15),#11);  
#2= IFCPERSON($,'unknown','user',$,$,$,$,$,$);#3= IFCORGANIZATION($,  
'Cadwork Informatik AG','organization',$,$);#4=  
IFCPERSONANDORGANIZATION(#2,#3,$);
```