



CASE STUDY

DIN SPEC 91400
**Building Information
Modeling (BIM):**
From model to
specification of works



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Today, software has taken the place of blueprints: Architects and building designers have been using software for their work for many years. Sophisticated three-dimensional modeling makes it possible to view a building from numerous perspectives. But behind the computerized drawings themselves there is a large amount of useful information relating to each design element, to each of which precisely defined properties are assigned.

Just one click on the digital architectural plan gives information such as thickness, material or thermal properties for the object in question. This technique is called "Building Information Modeling (BIM)". BIM is not only used to optimize design – the digital data is provided throughout the entire life cycle of the building or construction: From design to construction, to occupancy and, later, demolition.

But until now there have been no standards for describing objects in a uniform manner. "That is why standardizing the properties of spatial building elements was for us the first order of the day", says Rd. Klaus Schiller, Managing Director of f:data GmbH in Weimar and Rd. Schiller und Partner GmbH in Dresden. "After all, [these properties] are not only an important aspect of designing new buildings, but

also of construction and the associated specifications of works". In Germany, the latter are defined in the "Standardleistungsbuch Bau (STLB)", a database of standardized descriptions of construction work. Architects and designers use these standard descriptions for tendering, which provides legal security for all contract partners.

BIM and STLB: Made for each other

According to Schiller, BIM and STLB are made for each other because specifications of work can be easily derived from the description of spatial elements in BIM – as long as the BIM objects have been standardized. With this in mind, Rd. Schiller & Partner GmbH submitted a plan for a new DIN SPEC, together with the companies and associations Hauptverband der Deutschen Bauindustrie, building SMART e. V., CAFM RING, ZDB, and f:data GmbH.

A DIN specification, or "DIN SPEC", is a standards deliverable that can be developed and published within a very short period of time – sometimes only a few months.

The aim of DIN SPEC 91400 is to establish a standard classification system for specifying BIM objects such as walls, windows, and other building elements – a catalogue of possible characteristics which will be of great use to building planners and architects.

The “DIN SPEC” is an instrument for standardizing innovative technologies, products or services in order to quickly place them on the market. DIN organizes the entire process and the authors of the specification can then concentrate on the content. Because all relevant actors come together to draw up a DIN SPEC, the needs of suppliers and customers alike are taken into consideration from the very beginning.

Standard classification system

The aim of this new document, DIN SPEC 91400, is to establish a standard classification system for specifying BIM objects such as walls, windows, and other building elements – a catalogue of possible characteristics which will be of great use to building planners and architects. The authors of the DIN SPEC wanted to provide a bridge between BIM component modelling and an STL-based description of works. “With a push of a button we can now generate a complete specification of works based on a building model”, explains Schiller.

The proposal for the document was accepted in March 2014, and a business plan was drawn up as early as April. As with all DIN SPECs, the business plan was made available to the public for commenting. Once DIN gave its approval in May, a temporary “workshop” was set up to draw up the content, most of which was available by the second meeting of the workshop in September. The final voting took place in November and DIN approved the document in December. DIN SPEC 91400 was then published in January 2015. “Of course it is always possible to adopt

the DIN SPEC later as a full standard”, says De-Won Cho, the responsible DIN project manager. “But the DIN SPEC was a fast, practical means of getting this important standard out quickly so the building sector could take immediate advantage of it.”

Software developers can use DIN SPEC 91400 to create plug-ins giving their users direct access to the STL catalogue. One example of how this document has already been put into practice is the “DBD-BIM” plug-in developed by f:data for Autodesk’s widely used “Revit” program. The plug-in gives access to a web-based database with over 700 component classes and 2,000 component types. For example, with DBD-BIM a designer can select properties such as thickness, material or strength class from a drop-down menu to clearly describe objects for a new building. This can help draw up specifications of work or estimate costs.

The plug-in also automatically shows users which DIN Standards apply to an object, and which provisions of the German construction contract procedures (VOB) apply. “This way we provide a full integration of BIM, the STL and the collection of German standards”, says Cho.

DIN SPEC Gaining trust, time and a competitive advantage



Data exchange between different software solutions

The classification system described in DIN SPEC 91400 is compatible with the international standard syntax for exchanging building information models, the Industry Foundation Classes (IFC) specified in ISO 16739. This standard format makes it easy to exchange data between different software solutions – and among the parties involved in a building project. For example, architects can create a digital building model and then use a plug-in such as DBD-BIM to describe each object in detail. The construction company can then import this information as an IFC file and use it to plan materials purchasing and for tendering.

This information is also extremely useful for building owners when it comes to maintenance and repairs: If a water pipeline or window breaks, they won't need to page through thick files. Rather, one click is enough to access the necessary data from the list of objects. BIM thus also makes it easier to manage buildings.

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“This new DIN SPEC is like a rail network upon which many different applications can travel” is how Schiller describes the advantages of the DIN SPEC. Apparently, many users are of the same opinion: DIN SPEC 91400 has attracted great interest among building specialists, software developers – and customers. Which is no surprise: This specification is the first sector-wide standard that brings together what belongs together in the world of BIM.

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