# MVD AND SIMPLEBIM®

Simplebim® has its historic roots in MVD (Model View Definition). It uses the same basic principles of choosing the relevant objects and properties for each use case, and separating data requirements from their binding to a specific schema. But simplebim® offers a new approach to how these ideas are turned into reality in the context of software implementation, certification, BIM requirements and their use in real construction projects.

The idea of MVD is quite straight forward. Each individual data exchange (use case) requires a specific set of data, which is covered by a small part of the full IFC model. These data requirements are documented as a generic, schema independent MVD (or IDM). This generic MVD is then mapped to a specific version of IFC, or any other suitable schema, which results in the binding definitions for that schema.

For IFC based software interoperability to work, an IFC model (usually IFC file) satisfying the requirements of both the generic MVD data requirements and their binding to IFC must be exchanged between the participants. The receiving application must then be able to import this IFC model and use it in a way that provides sufficient value to the user of that application.
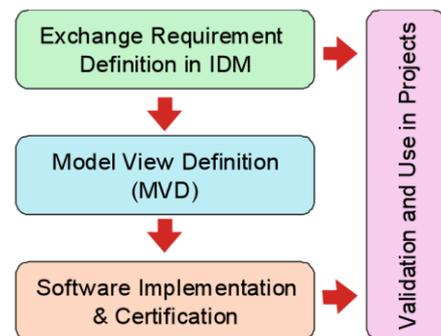
However, turning this into reality requires considerable investments and time. Defining the generic MVD definitions (or IDM) requires funding and a broad consensus about which use cases should be prioritized. Creating the IFC bindings requires the participation of software implementers, because the bindings affect the way they implement their IFC import and export capabilities. Implementers must be convinced to implement support for the MVDs and certification must be organized for testing the implementations for compliance with the MVDs. Then a set of BIM requirements must be created for defining how the new possibilities are to be used in the business environment of real projects. And finally there must be documentation for how to use the different BIM authoring applications such that MVD compliant IFC models are actually created. This all should be globally coordinated because different MVDs are often largely overlapping.

Experience has shown that this approach is problematic. The system is expensive and slow to build up and it cannot react to new situations fast enough. If the need for a new use case emerges, it must go through this long standardization, implementation, certification and documentation process before being available to real projects. The system is also fragile. It basically requires a perfect match between the IFC export and import implementations. In addition the BIM authoring application must be used in specific ways (modeling practices, templates, libraries etc.) to enable the export of compliant IFC models. This works in theory, but it rarely works in practice. And even when it does work, it is not the most reliable and efficient solution.

MVD AND SIMPLEBIM®

Enter simplebim®. With simplebim® we try to keep the good ideas of MVD, but at the same time re-invent how they are turned into reality. The key idea is simple; decoupling the requirements for IFC export and import implementations.

Simplebim® is an application that sits in between the BIM authoring application and the application importing the IFC model, and is preferably used by the BIM author. Simplebim imports the IFC file exported from the authoring application, restructures the model such that is satisfies the requirements of the receiving application and exports a new IFC file. Finally this new IFC file is imported into the receiving application.
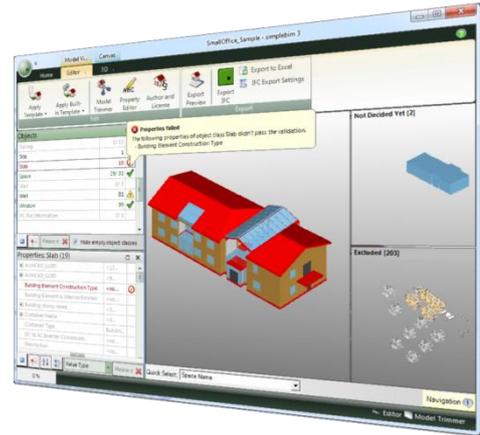
In this scenario the BIM authoring application must be able to simply export an 'IFC dump', i.e. an IFC model containing all data that is in scope of the MVD (or IDM). With the notable exception of geometry, the data can be freely put into any IFC data structures (property sets, element quantities, classification references etc.) There is even no need to standardize any property names. The BIM author can fully concentrate on creating the required data and can use the BIM authoring application in the most efficient way.

When the resulting 'IFC dump' is imported into simplebim® it is validated against both the data and binding requirements of the MVD. First all objects and properties that are not in scope of the MVD are excluded from the model, because unnecessary data just causes unnecessary problems. Then relevant properties are moved from wherever they landed in the 'IFC dump' to where they should be, like moving the space name from a property set into the LongName property of IfcSpace. Property values can also be edited, e.g. the abbreviated space name 'St' changed to 'Strorage'. This is much like copy-editing, because the purpose is not to edit the design, but how the design is captured in IFC.

The only remaining requirement for the importing application is to support one way of capturing the relevant data in IFC. In theory the supported way should be the IFC binding of an official MVD, but often the import implementations are not fully compliant, or an official MVD for the use case does not even exist. But with the help of simplebim® the exchange still works because it is possible to create a 'reverse engineered MVD' matching the actual implementation of the importing application. In simplebim® we call this a template.

With simplebim® IFC based data exchange simply works better. As such there is nothing wrong with MVD and IDM standardization, IFC certification and setting requirements for BIM exchange and modeling. All of this helps in creating an environment where people and organizations are better aware of the potential of IFC and it also reduces the need to re-invent the wheel. However, this approach clearly has its limitations and shortcomings.

With its novel approach simplebim® solves many of those issues and brings the control over requirement definitions and IFC based data exchange much closer to the people who work in real construction projects. It helps them solve their immediate, everyday problems without unnecessary costs or delays. And simplebim® does all this with IFC.

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