In Denmark, a proposal for a new Danish Classification System (Dansk Bygge Klassifikation – DBK) has been developed some years ago for the Danish building industry. It has been claimed that this system should replace the existing SfB classification system, which has been considered obsolete. The new DBK was introduced as a major advancement for the building industry and, since then, much effort has been made to convince users to take it on board but with little success. Further, much critique has been raised but a thorough debate about the proposal has never been arranged.

Some fine ideas are introduced in DBK but the fundamental issue is that DBK is not a classification system because it does not comply with the basic conventions regarding classification. This means that DBK is not at all comparable with the existing classification systems in the world, e.g. OmniClass, UniClass and BSAB96.

The primary proposal is the introduction of what is termed as reference designations, adopted from the ISO/IEC 81346 standard, which has been used to describe equipment in industrial systems. The use of this methodology is claimed to be about identification of objects of interest by applying reference designations for three views or aspects: the product aspect, the location aspect and the function aspect. The following is exclusively addressing this issue and it is argued that 1) the use of reference designations is not new, 2) referencing is not about identification but instead about specification, and 3) the proposal is useless and needless in a modern design process working with building models.

**DBK Reference System**

The primary purpose of using reference designations is to enable users to add further data to a description of an object, most likely a model object. According to the proposal, the reference designation '-205.02.01' refers to the entry in the underlying table for the product aspect: 'wall system – window panel – window'. Similarly, '='20.01' refers to the entry in the underlying function table: 'illuminate with daylight'.

This way of adding data to an object is not at all new. It is a way of making specification and for instance in the theory of relational databases, it is well known in the last nearly 40
years as the concept foreign keys. Furthermore, it is comprehensively implemented as relationships in Industry Foundation Classes (IFC).

The proposal gives the wrong impression about reference designations by claiming that referencing is about identification. The traditional understanding is that when a model object is created, it has a set of attributes to which values can be assigned. One of these attributes is the identifier of the object and the value is either user defined or most often system defined (automatically generated) and is supposed to be left unchanged for the rest of the object's life time. The object identifier can be used whenever it is necessary to refer to the object from other objects. In IFC, the Global Unique Identifier (GUID) is system generated and used intensively in all types of relationships.

Identification is sometimes also understood as giving a model object identity and, obviously, the IFC GUID does not provide any form of identity. This is done by other attributes and e.g. IFC Property Sets. Of cause, such an attribute could be a user defined identifier or a name of the object and, if required, this attribute must be handled with special care in modelling in order to preserve it through the life time. Having identifying attributes, these attributes can be used for searching of one or more objects, presumably without knowing the identifier. This is also termed querying, where the search is performed based on user supplied query conditions.

Finally, the discussion about identification is mixed up with identification of the physical component matching the model object. This can be achieved in many ways and, for instance, the above mentioned user defined identifier can be used. In the future, other means of identification can also be used, e.g. RFIDs.

**Specification Aspects**

As mentioned, the DBK proposal introduces the use of aspects. This is also not at all new in connection with specification. It is just a way to characterize specifications, e.g. of attributes or properties and has been know all the way back to Aristoteles.

For the product aspect, a table is developed and, as indicated above, entries of this table are supposed to be used for specification of (model) objects. This table is a generic description of "whole-part" structures of buildings and a function table is developed as an extension. It is claimed that this foundation is better than classification.

It must be observed that classification and composition are termed abstraction mechanisms in the theories about information modelling. For further reading, see the paper "Building Concepts and Classifications". It must also be stated that there is a difference between the abstraction mechanism classification and the verb classification, i.e. "to classify". These two meanings are not clearly distinguished in the proposal.

Composition may sometimes also be referred to with the more limited term aggregation. Hence, seen from a theoretical point of view, classification and composition are mutual contradictions and it can be concluded that the product aspect table is not comparable with classification systems.

In addition, it must be stated that, if the products aspect table should be complete, it will be an enormous large table and, even worse, it will contain many duplicates. Consequently, the table will be impossible to overview and difficult to maintain. The use of the function table is also limited because it is linked to the composition table and it is thereby assumed that the

---

1 About Industry Foundation Classes, see: [http://www.buildingsmart.com/](http://www.buildingsmart.com/)

composition is defined first. This is definitely not always the case in design processes. Often, considerations about functions come first.

The location aspect has no underlying table but is the definition of a rule for description of location. For example, the reference designation ‘+1.002’ refers to "storey 1 room 002".

The most important evaluation, however, is that specification according to the product aspect and the location aspect is completely needless, at least when it comes to working with building models. As it is well known, the wide range of possible relationships between objects in a building model represented in IFC give many possibilities for extraction and presentation. Furthermore, it is possible to add many kinds of properties via IFC Property Sets.

Regarding the product aspect, there are even two kinds of decomposition relationships in IFC: aggregation of objects of different types and nesting of objects of the same type. In addition, the relationship "contains in spatial structure" makes it possible to link space objects with building construction components and vice versa. If this is not enough, other kinds of data can be included by referencing via the association relationship.

Regarding specification according to the location aspect is also needless because, in the meaning placement, each object has exact coordinates, which gives the exact position in the building or the site. Even global spherical coordinates can be specified if required.

**Conclusion**

This short description of some of the parts of the DBK proposal is selected in order to draw forward the most controversial issues. The expressed evaluation statements give clear arguments that there is nothing new in the proposal regarding these issues. Some statements in the proposal are misleading and, related to modern work processes with building models, the proposal is useless and needless.