

# **BIM Legal: defining a standard for 3D cadastral registration of apartment complexes**

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## **SUMMARY**

The use of Building Information Models (BIM) to establish rights and responsibilities for multi-level building complexes has been explored in many initiatives. However, the implementation of BIM-based cadastral registrations in practice remains limited due to the complex interplay between legal and technical aspects.

In collaboration with Kadaster, Delft University of Technology, and a BIM expert from Australia, we are investigating the specifications for a BIM Legal standard that will allow the 3D cadastral registration of apartment complexes via a BIM Legal file. The BIM Legal standard will align the technical potential with the legal requirements of the Dutch cadastral registration.

The aim of this research is to define a suitable standard for a BIM Legal file to be submitted when an apartment complex is being registered, based on IFC (the open standard used in the BIM domain). The BIM Legal standard will specify how to assign rights to private and shared spaces as well as responsibilities to specific elements of the building complex (such as load-bearing walls, facades, roofs, etc.).

The geometric and non-geometric data requirements will be defined to allow the BIM Legal model to be registered, updated and shared with stakeholders in the Land Registry independently of the BIM source data. It will also be explored how the submitted BIM Legal model can be used to update other registrations and databases, preferably including the relevant 3D information, such as the cadastral map and the building and address registry.

Based on the data requirements, a data model is being specified in UML, which we will also align with other national and international standardisation initiatives, such as the LADM (Land

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Administration Domain Model). Wherever possible, classes will be mapped to IFC elements.

The research will use prototypes to substantiate the different choices.

The validation of the BIM Legal standard is also part of this research. It includes a technical validation to check that the submitted BIM Legal file conforms to the BIM Legal standard. For this purpose, we will adopt the validation service offered by BuildingSMART which will be extended for our case.

In the proposed presentation, the progress of the work will be presented including the UML model and the choices made which are illustrated by IFC example files.

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