IDM IN NATIVE SOFTWARE

BRICSCAD · Tekla Structures · SketchUp · Adomi BIM van A tot Z · ALLPLAN · SCIAENGINEER · DDS-CAD · Your software here?

This document provides instructions on how to conform to the Basic Information Delivery Manual (IDM) with **BricsCAD**. The sections of the IDM are treated one by one below.

2. HOW ARE WE GOING TO SHARE THIS INFORMATION UNAMBIGUOUSLY?

✓ OpenBIM – Export based on IFC

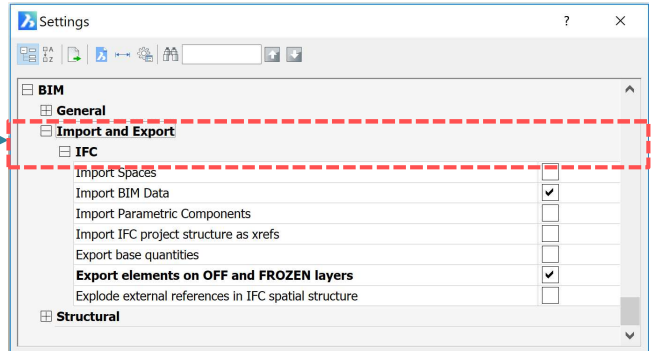
BRICSCAD

These instructions are based on BricsCAD 18.2.05.

BricsCAD 18

✓ Export to IFC:
'File' → 'Export' → Save as IFC file (*.ifc)
(Basic settings IFC2x3 TC1)

NOTE:
The settings for exporting to IFC are found here:
'File' → 'Export Options' → 'BIM' → 'Import and Export' → 'IFC'



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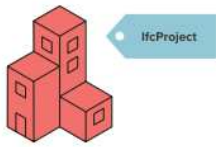
Versie 1.0
09-05-2018

WHAT IN IFC	HOW IN NATIVE SOFTWARE (BricsCAD)

3.1 FILE NAME

✓ Ensure that uniform and consistent naming is used for (discipline) models within the Project.
example: <Building>_<Discipline>_<Component

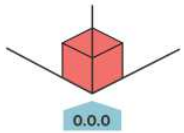


✓ Use consistent naming for the models within the project
Use the agreements in the BIM protocol.
Example:
B-INS-WL
B-BWK-C

✓ When saving/exporting your project, you can give the .ifc file the correct name.

3.2 LOCAL POSITION AND ORIENTATION - ORIGIN

✓ The local position of the building is coordinated and close to the origin.
tip: use a physical object as point of origin, positioned at 0.0.0., and also export this to IFC



✓ Fix the position of an object.

Examples:
"Polysolid" → 'Starting point' → you enter the values for 'x,y,z'
"Box" → 'Set corner of box' → you enter the values for 'x,y,z'

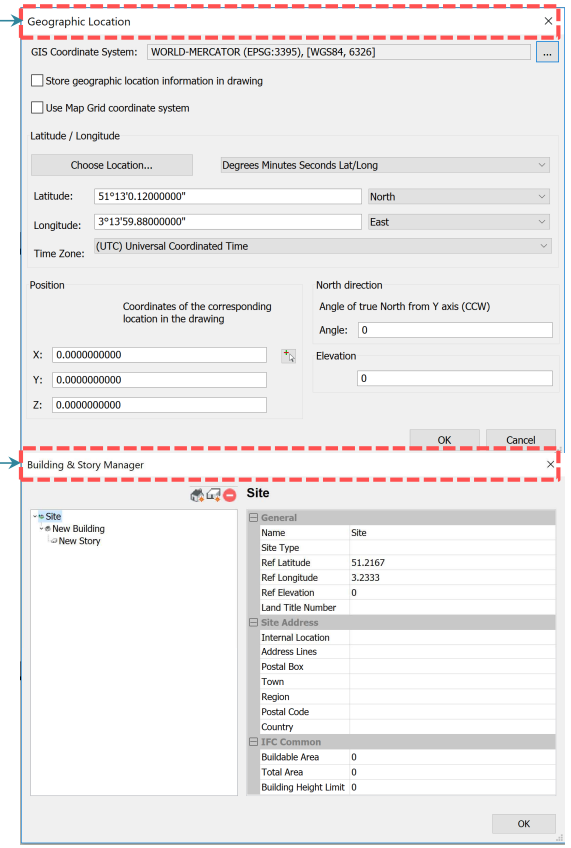
✓ Position your project according to the agreements made.

Example:
"Grid axis A-1 needs to be located at 10000mm x 10000mm away from the 0.0.0-point (origin). Z-axis = 0 = finished ground floor."

✓ Use a physical object as point of origin, positioned at 0.0.0., and also export this to IFC. In BricsCAD, the point of origin of your project also becomes the point of origin in the .ifc file. This is a fixed setting.

✓ The exact coordinates of the building can be set via the "GeographicLocation" command. Here also the height (elevation) and the north direction can be indicated (for example for performing sun simulations).

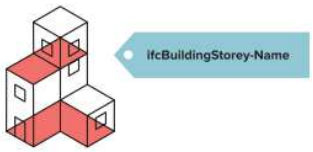
TIP:
Additional BIM data regarding the location of the site, the buildings and the depths can be added via the command "BIMSpatialLocations". One can, among other things, set the address, the surfaces and the heights.



WHAT IN IFC

3.3 BUILDING STOREYS AND NAMING

- ✓ Name Building Storeys only as ifcBuildingStorey-Name.
  Allocate all objects to the correct level.
  Within a project, ensure that all involved parties consistently use exactly the same naming, that can be numerically sorted with a textual description.
  example 1: 00 ground floor
  example 2: 01 first floor

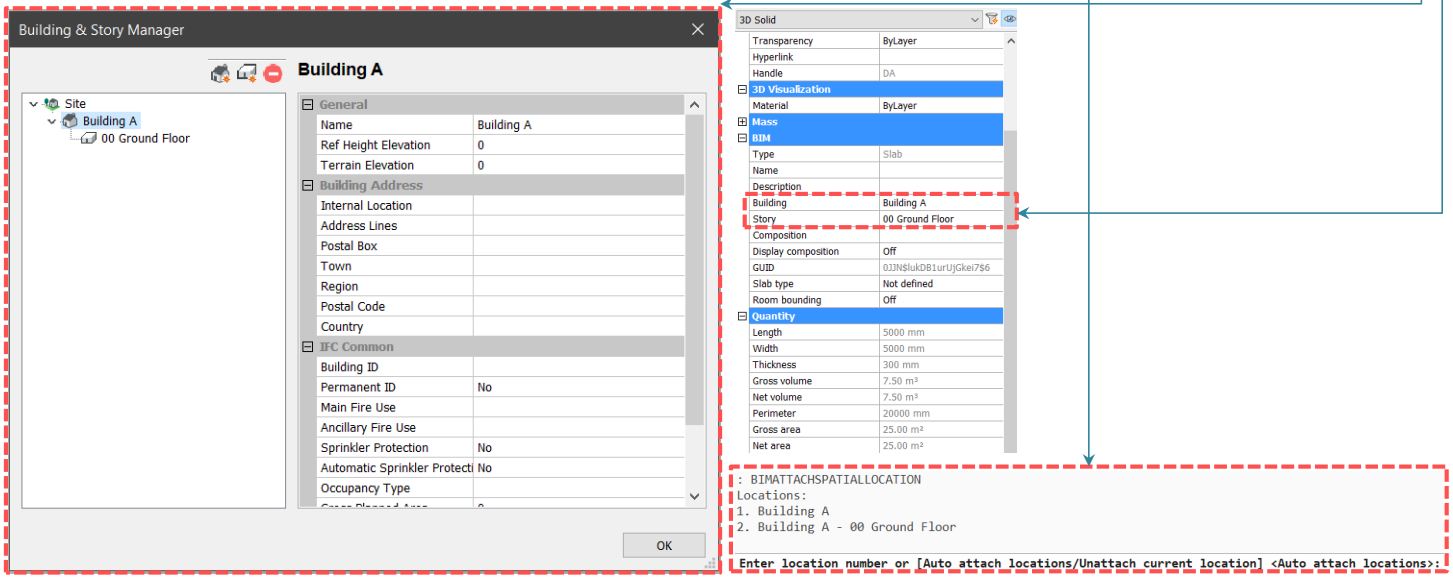


HOW IN NATIVE SOFTWARE (BricsCAD)

- ✓ In the BIM protocol (or work plan) it will be agreed on how many and which floors there need to be.
- ✓ You create a floor as follows: first you create a building via the command "BIMSpatialLocations". In the dialog you can click on 'New Building', then you give that building a name. Then select the correct building from the list and create a floor via 'New Story'. You can now give this floor a suitable name, for example '00 Ground Floor', as well as a height (elevation). You can also add other IFC data.
- ✓ Then you model the objects that should come on each floor. You are not allowed to model walls and other elements with a height of several floors. (The dividing line does not necessarily have to be on the floor height, but it is close to it.) Often, the external walls are separated between storeys at the level of the top of the structural floor.
- ✓ Finally, ensure that objects are assigned to the right floor. For this you first execute the command "BIMClassify", where you give the objects a correct IFC classification, for example ifcWall (see point 3.4 for more info). Once classified, an extra 'BIM' section will appear in the Properties panel. Under this header you will now find a lot of BIM data fields, including 'Building' and 'Story'. The previously created buildings and floors can now be chosen from a drop-down menu.

TIP:

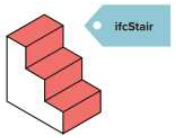
If the objects are classified, you can also work entirely via the command line. For this you type "BIMAttachSpatialLocation", after which you get a choice from the different buildings and floors in the Prompt History (accessible via key F2). Once a building and floor has been selected by typing in the correct number, you can select the right objects. You can also use this command to choose 'Unattach Current Location' to remove an object from its building and floor.



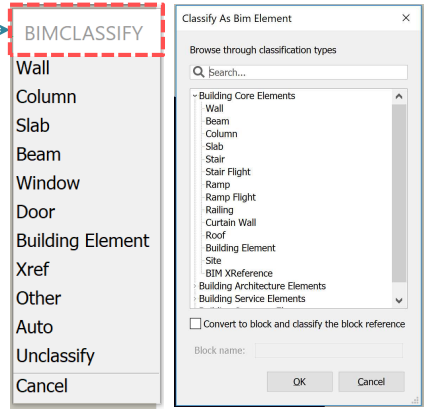
WHAT IN IFC	HOW IN NATIVE SOFTWARE (BricsCAD)

3.4 CORRECT USE OF ENTITIES

- ✓ Use the most appropriate type of BIM entity, both in the source application and the IFC entity.
  example: slab = ifcSlab, wall = ifcWall, beam = ifcBeam, column = ifcColumn, stair = ifcStair, door = ifcDoor etc.



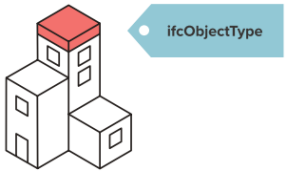
- ✓ You give an object an IFC classification by typing the command "BIMClassify" in the command line. You will get a menu with a few quick choices such as 'Wall', 'Column', 'Slab', as well as the option 'Unclassify'. If you press Enter again, a larger dialog will appear in which all IFC classifications can be selected.



TIP:
You can also use the command "BIMify" or the option 'Auto' with the command "BIMClassify". These options automatically give the correct classification of elements, such as walls, floors, etc. In other words, it is a shortcut to classify your 3D model. The command "BIMify" automatically adds a Spatial Location (building and floor) to the objects as well, so step 3.3 is also done immediately.

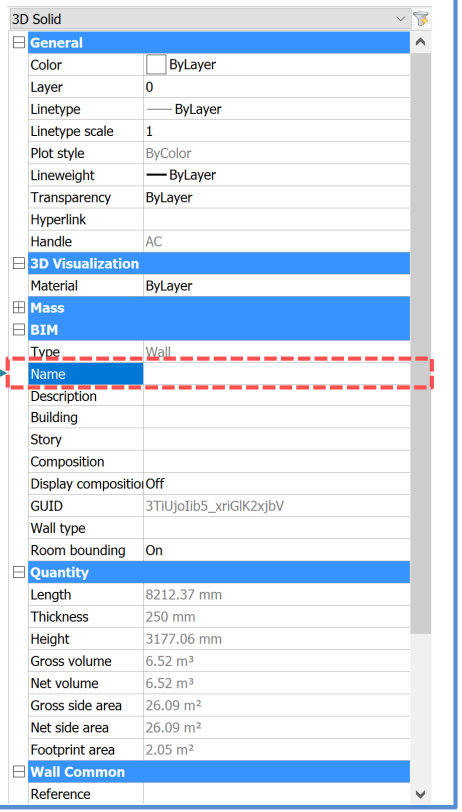
3.5 STRUCTURE AND NAMING

- ✓ Consistently structure and name objects. Correctly enter the object TYPE (ifcType,
- ✓ ifcObjectType or ifcObjectTypeOverride). Where applicable, also correctly enter the
- ✓ Name (ifcName or NameOverride).
  example: roof insulation, type: glass fibre



- ✓ You give an object a name by filling in the 'Name' field under the 'BIM' section in the Properties panel. This is only possible if you have classified the object with the correct (most appropriate) entity or as described in chapter 3.4.

NOTE:
Give an object a name that is as "simple" as possible (structured and consistent). For example, if you model a sand-lime brick wall of 100, call it 'sand-lime brick_100' and not 'slb_100_30min_54dB_ext'. Put the other properties in the appropriate parameter fields and not in the name.

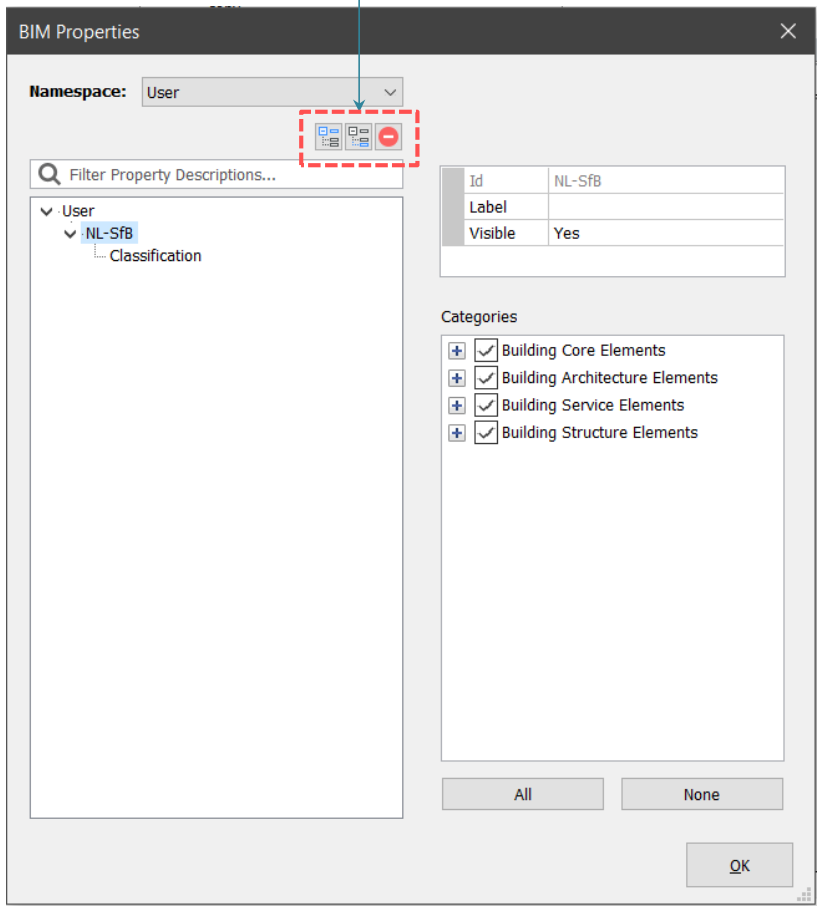


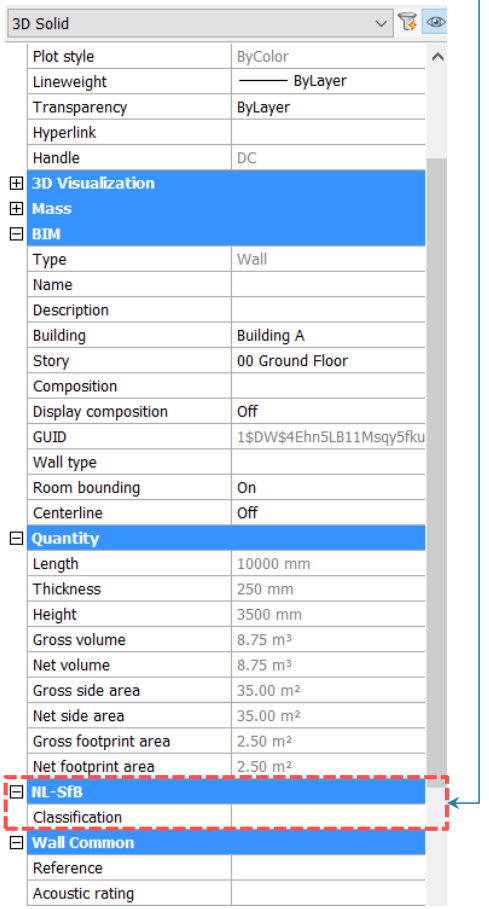
WHAT IN IFC	HOW IN NATIVE SOFTWARE (BricsCAD)

3.6 CLASSIFICATION SYSTEM

- ✓ Apply the existing classification system used in the relevant country. In the Netherlands this is the NL-SfB.
  Allocate to each object a four-digit NL-SfB variant element code.
  example: 22.11

- ✓ Attach to each object its relevant NL-SfB coding (at least 4 digits).
- ✓ The best way to include this property in the IFC file is to create your own property. Do the following:
  Command "BIMProperties" → click on 'Add Property Set' → give it the name "NL-SfB"→ click on all categories to which this property applies → click on 'Add Property to the selected Property Set' → give it the name "Classification" → click 'OK'.
  You will see this property appear in the Properties panel of an object. You can now fill in the field with the correct NL-SfB coding.

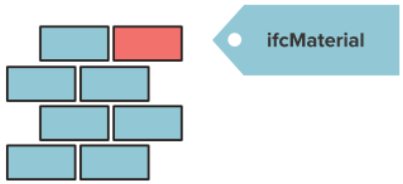




WHAT IN IFC

3.7 OBJECTS WITH CORRECT MATERIALIZATION

✓ Allocate objects with a material description (ifcMaterial)
example: limestone



HOW IN NATIVE SOFTWARE (BricsCAD)

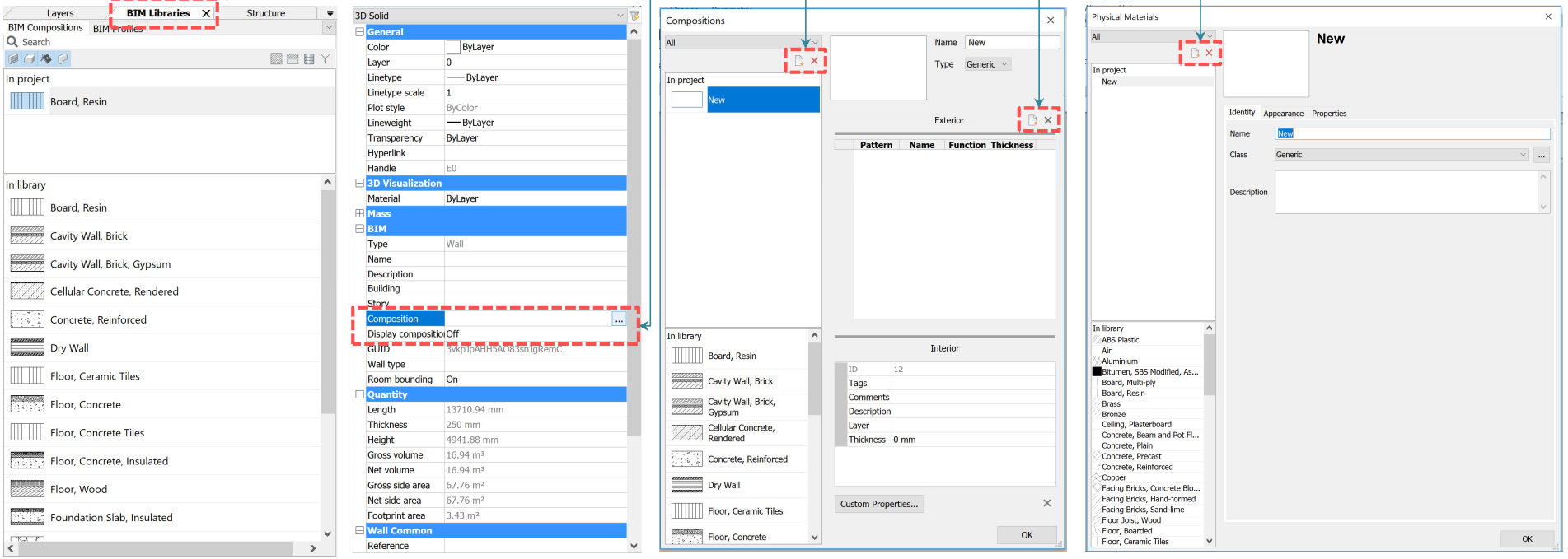
✓ You can add materials and compositions to your project via "BLMaterials" and "BLCompositions" respectively. There you can choose from the predefined list or create a new material or composition yourself.

✓ You can add a composition to a classified object in the Properties panel in the 'Composition' field under the 'BIM' header. If you press the three dots you get the 'Compositions' dialog, where you can then press 'Select' after indicating a composition in the project. You can also add a new composition from here.

✓ You can not directly assign a material to an object. You always have to make a composition of the material. Of course, this composition can consist of only 1 material. For this you can either create a new composition in the 'Compositions' window that consists of only 1 material (with thickness 0) or via the 'Material window' → right mouse click on a material → 'Make Composition'.

TIP:
You can also add compositions from the predefined list via 'BIM Libraries' by dragging them onto your objects.

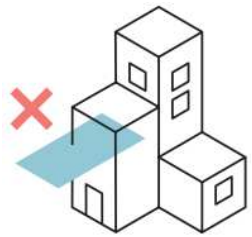
NOTE:
In the Properties panel you can choose whether or not to show the composition in the modeling environment. For this you set the field 'DisplayComposition' On or Off.



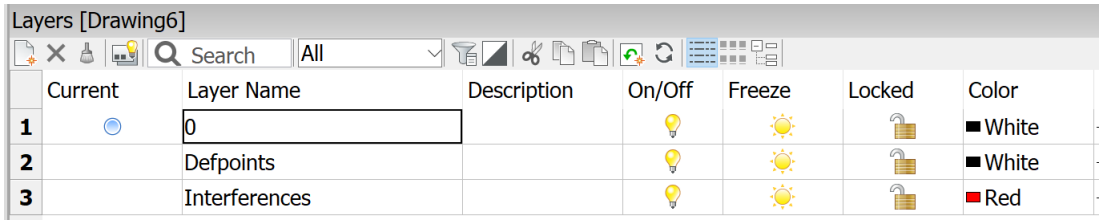
WHAT IN IFC	HOW IN NATIVE SOFTWARE (BricsCAD)

3.8 DUPLICATES AND INTERSECTIONS

✓ There are no duplicates or intersections permitted.
Make sure this is checked in IFC.



✓ Before forwarding, check the model for intersections and duplications. In BricsCAD you can do this with the command "Interfere". This will show you all intersections and duplications by creating them as new geometries in the layer 'Interferences'. You can now manually adjust the original geometry until there are no more problems.



	Current	Layer Name	Description	On/Off	Freeze	Locked	Color
1	●	0					White
2		Defpoints					White
3		Interferences					Red

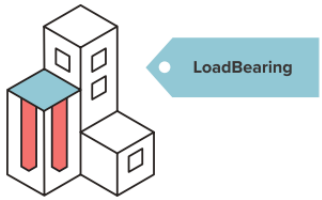
example: for beams, the properties FireRating, LoadBearing and IsExternal are part of the Pset_BeamCommon.

WHAT IN IFC

HOW IN NATIVE SOFTWARE (BricsCAD)

4.1 LOADBEARING

✓ Allocate objects, when applicable, with the property LoadBearing [True/False].



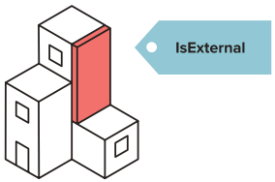
✓ If an object is classified, the 'LoadBearing' property is adjustable (On/Off) in the Properties panel under the '... Common' header.

☛ ***NOTE:***
On = True
Off = False

Wall Common	
Reference	
Acoustic rating	
Fire rating	
Combustible	Off
Surface spread of flame	
Thermal transmittance	0 W/m²·K
Is external	Off
Extend to structure	Off
Load bearing	Off
Compartmentation	Off

4.2 IS EXTERNAL

✓ Allocate objects, when applicable, with the property IsExternal [True/False]
tip: both inner and outer faces of the façade have the property IsExternalTrue.



✓ If an object is classified, the 'IsExternal' property is adjustable (On/Off) in the Properties panel under the '... Common' header.

☛ ***NOTE:***
On = True
Off = False

Wall Common	
Reference	
Acoustic rating	
Fire rating	
Combustible	Off
Surface spread of flame	
Thermal transmittance	0 W/m²·K
Is external	Off
Extend to structure	Off
Load bearing	Off
Compartmentation	Off

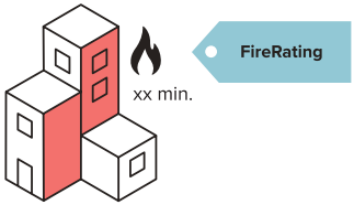
BRICSCAD

WHAT IN IFC

HOW IN NATIVE SOFTWARE (BricsCAD)

4.3 FIRERATING

- ✓ Allocate objects, when applicable, with the property FireRating.
  example: Apply the existing standard used in the relevant country. 30 / 60 / 90 120 min.



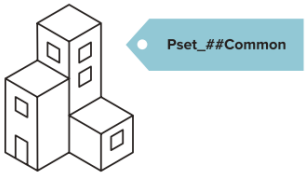
- ✓ If an object is classified, the 'FireRating' property is adjustable in the Properties panel under the '... Common' header.

Example:
Enter a value in minutes (0/20/30/60/90/120).

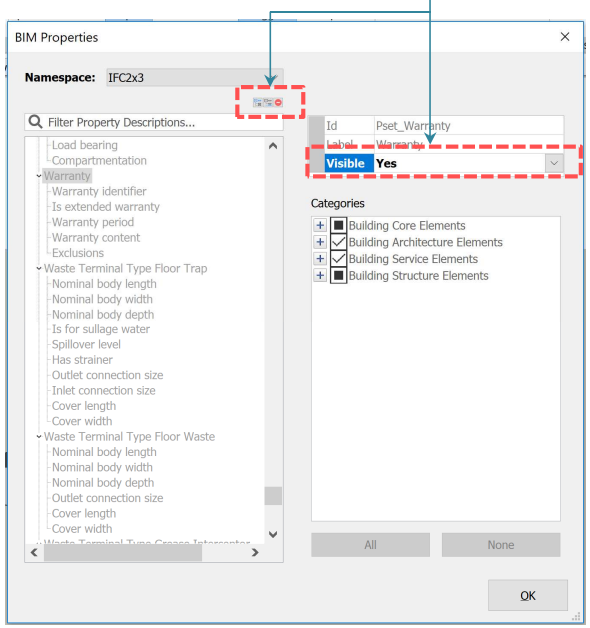
Wall Common	
Reference	
Acoustic rating	
Fire rating	
Combustible	Off
Surface spread of flame	
Thermal transmittance	0 W/m²·K
Is external	Off
Extend to structure	Off
Load bearing	Off
Compartmentation	Off

4.4 PROJECTSPECIFIC

- ✓ Define which IFC properties you are using for each specific project

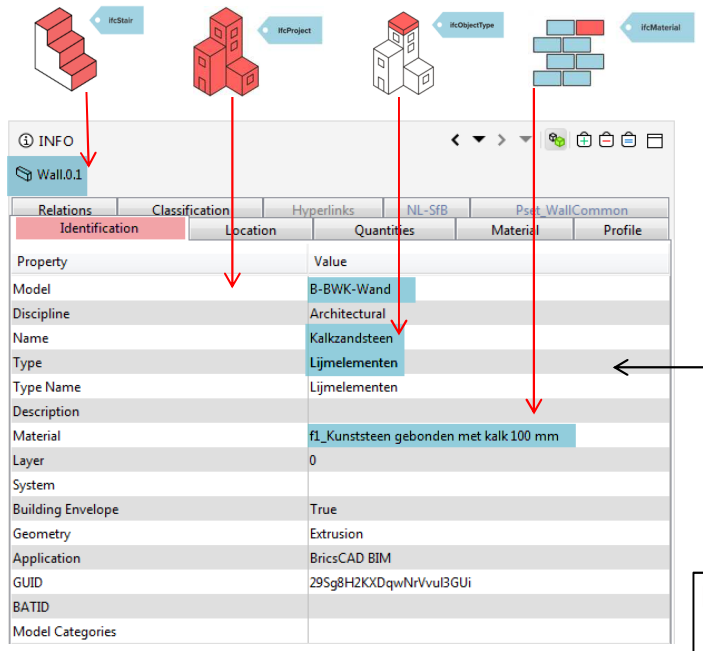


- ✓ Not all IFC properties are standard displayed in the Properties panel. To make this visible you must use the command "BIMProperties". In the 'BIM Properties' window you go to Namespace 'IFC2x3'. You can now find all IFC properties in the list. If you select one you will see a 'Visible' field, which you set to 'Yes'.

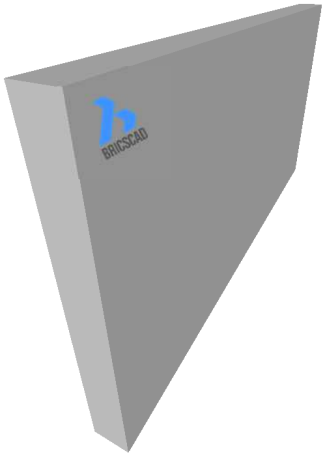


Wall Common	
Reference	
Acoustic rating	
Fire rating	
Combustible	Off
Surface spread of flame	
Thermal transmittance	0 W/m²·K
Is external	Off
Extend to structure	Off
Load bearing	Off
Compartmentation	Off
Warranty	
Warranty identifier	
Is extended warranty	Off
Warranty period	0 s
Warranty content	
Exclusions	

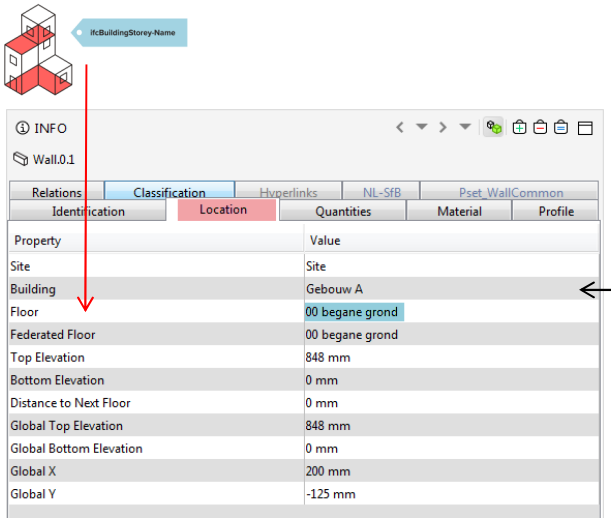
SOLIBRI
A NEMETSCHEK COMPANY

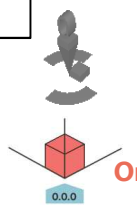


Identification



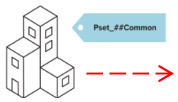
Location



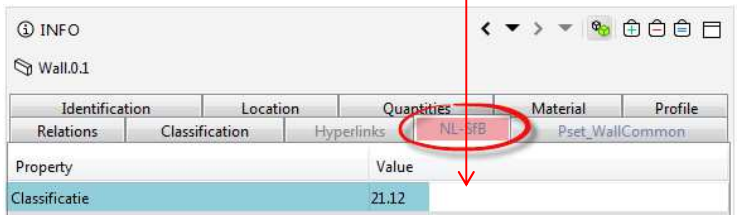


Origin

Pset##Common

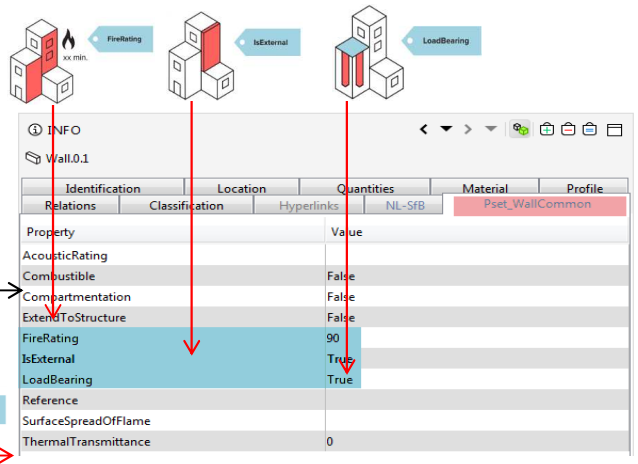


Mapping by Ifcclassificationreference not possible



~~Classification~~ → NL-SfB (pset)

Near future



BricsCAD- EXAMPLE OBJECT BASIC IDM IN SOLIBRI MODELCHECKER

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