MADASTER PLATFORM

IFC export in BIM software

Archicad 21 & Revit 2019

June 2019

Introduction

This manual serves to support the import of your real estate object (building) to the Madaster platform. In order to make your file suitable for import, it must comply with the IFC protocol.

Each 3D/CAD application software has its own procedure and practice to follow. This manual specifically describes the relevant steps related to element classification, material assignment and export settings for both Revit & Archicad applications.

For generic BIM information, reference is made to the BIM Basic Information Delivery Manual (IDM) and BIM Loket brochure.

For more information about working with the Madaster platform, please refer to the Madaster Quick Start Guide.

Detailed information about the processing of IFC files within the Madaster platform with regard to geometric properties, classification coding, construction phasing and material usage, is described in the document Madaster IFC import process explained. This document also describes how to check your IFC file against the Madaster requirements.

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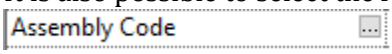
Revit

In order to prepare an IFC file for the Madaster platform, it is evident to understand how classification codes and materials are assigned to elements in Revit. Additionally, the correct settings for an IFC export in Revit are also briefly described.

For more information about Revit, reference is made to the online Revit Knowledge Network.

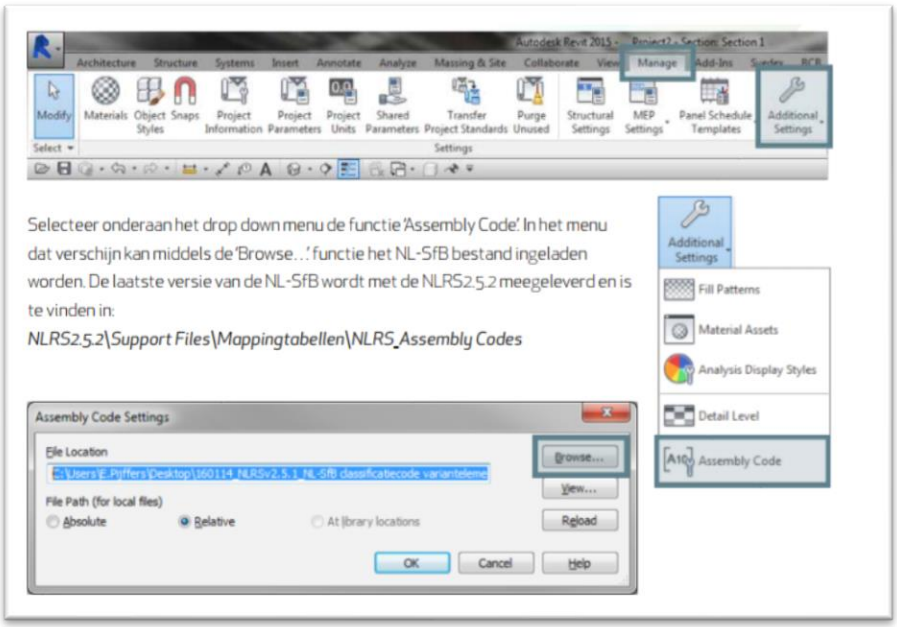
Adding building classification codes in Revit

Go to: *Manage* > *Additional Settings* > *Assembly Code*. Subsequently, navigate to the used building classification code(s)* using browse and confirm with *OK* to load this in Revit. When you selected an element, go to *Edit Type* and click in the parameter *Assembly Code* and type the correct building classification code.

It is also possible to select the Assembly Code from a list. To do this, click on the block figure 

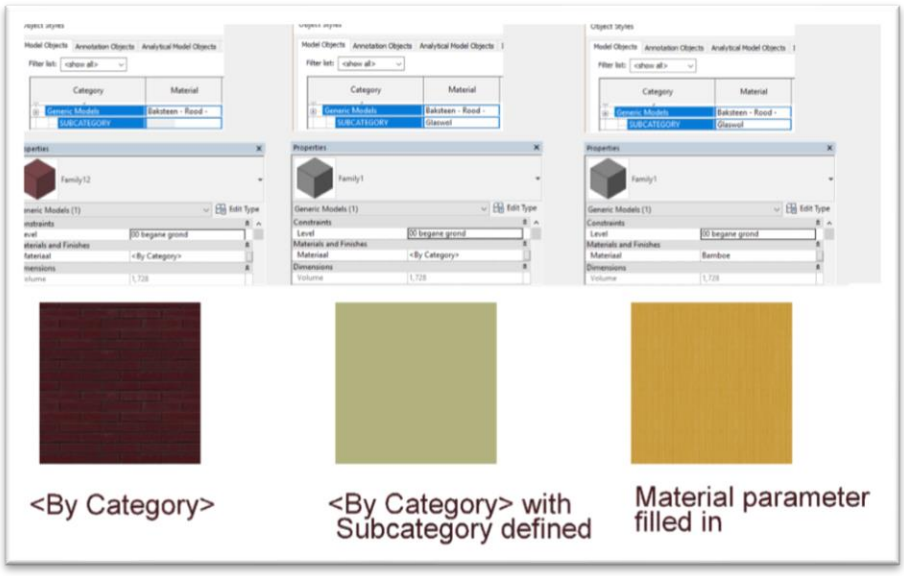
and select the correct classification code.

* Please note that the Madaster platform currently supports two building classification codes, being (1) the Dutch NL/SfB and (2) the international OnmiClass (table 21) classifications.



Adding materials to Revit

To create a proper materials passport from a 3D model, it is important that all elements are drawn in 3D and have a material assigned. Go to: *Manage tab* > *Settings Panel* > *Materials*.



Revit has 3 ways to set-up a material. This can be done by:

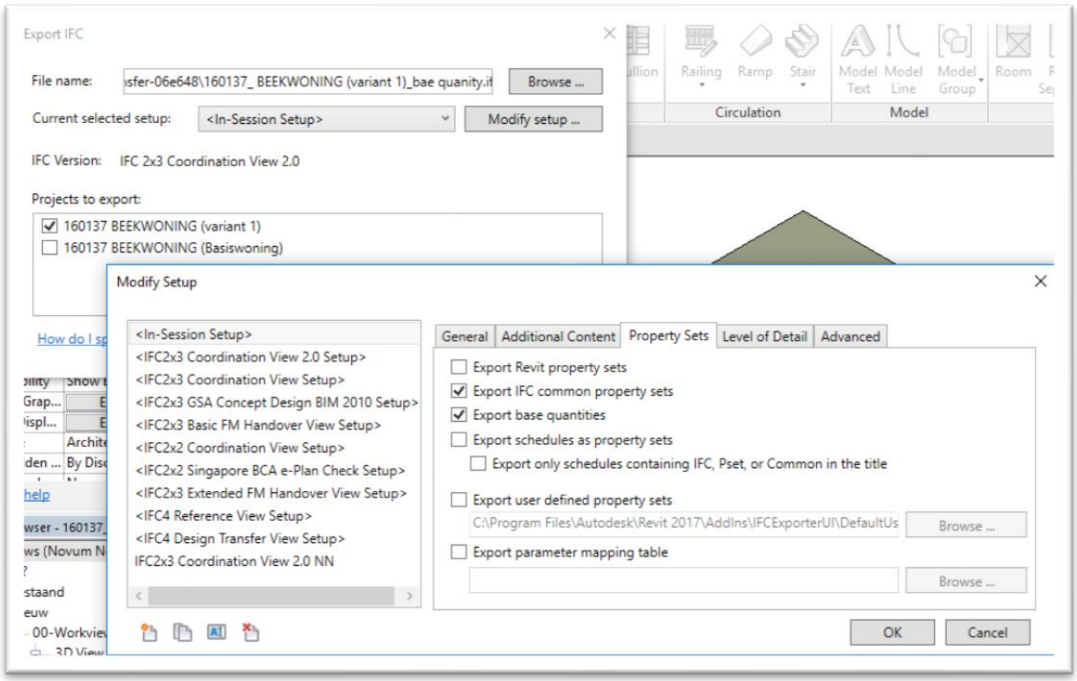
(1) setting the material to <By Category>, so that it will check in the Object Styles if a material has been set for the Category.
(2) If a material Subcategory is linked to one of the geometries in the Revit family then the one defined in this family will be used.
(3) Or the user specifies the right material directly in the element itself, then this material will be used. Revit itself has an Autodesk materials library. You can also use the NL/SfB materials library which you can import.

IFC export Revit

General information about IFC and Revit can be found here.

Manual set-up 'IFC export'

For IFC export, the IFC export settings can be adjusted manually under *Modify setup*. It is crucial for the export that the "*IFC common property set*" and "*base quantities*" tick boxes are selected when exporting the IFC file (see figure below).


Export IFC
File name:
Browse ...
Current selected setup:
<In-Session Setup>
Modify setup ...
IFC Version:
IFC 2x3 Coordination View 2.0
Projects to export:
160137 BEEKWONING (variant 1)
160137 BEEKWONING (Basiswoning)
Railing
Ramp
Stair
Model Text
Model Line
Model Group
Room
Circulation
Model
Modify Setup
<In-Session Setup>
<IFC2x3 Coordination View 2.0 Setup>
<IFC2x3 Coordination View Setup>
<IFC2x3 GSA Concept Design BIM 2010 Setup>
<IFC2x3 Basic FM Handover View Setup>
<IFC2x2 Coordination View Setup>
<IFC2x2 Singapore BCA e-Plan Check Setup>
<IFC2x3 Extended FM Handover View Setup>
<IFC4 Reference View Setup>
<IFC4 Design Transfer View Setup>
IFC2x3 Coordination View 2.0 NN
General
Additional Content
Property Sets
Level of Detail
Advanced
Export Revit property sets
Export IFC common property sets
Export base quantities
Export schedules as property sets
Export only schedules containing IFC, Pset, or Common in the title
Export user defined property sets
C:\Program Files\Autodesk\Revit 2017\AddIns\IFCExporterUI\DefaultUs
Browse ...
Export parameter mapping table
Browse ...
OK
Cancel

Archicad

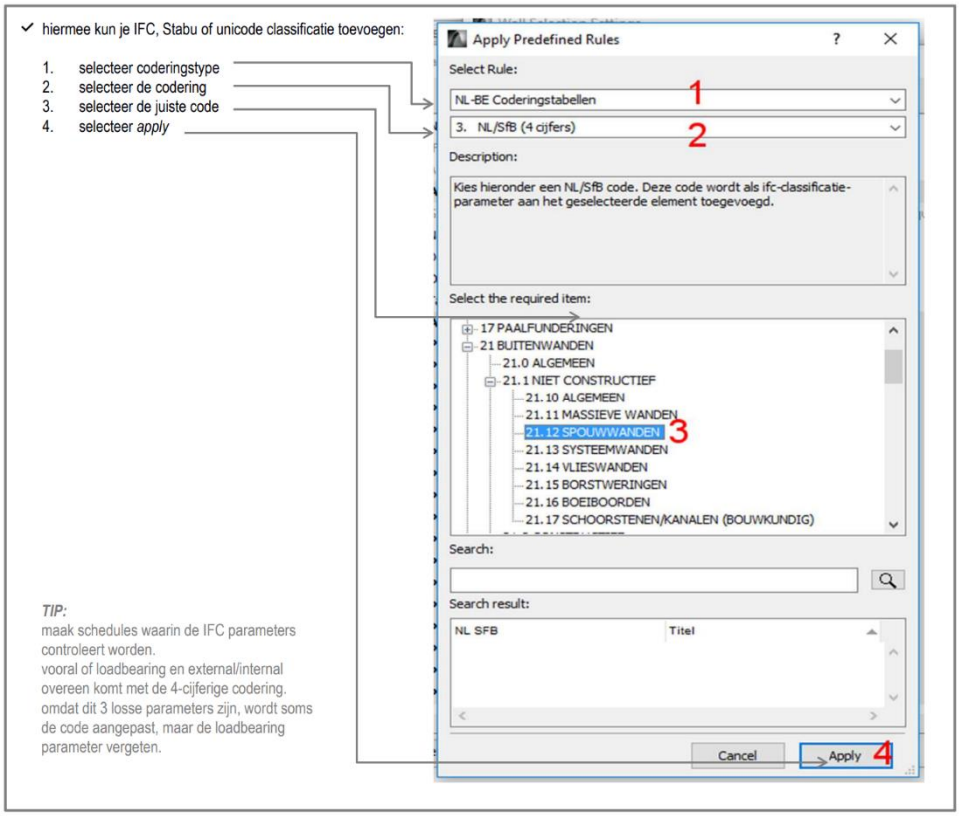
In order to prepare an IFC file for the Madaster platform, it is evident to understand how classification codes and materials are assigned to elements in archicad. Additionally, the correct settings for an IFC export in Archicad are also briefly described.

For more information about the Archicad application, reference is made to the online Interactive Training Guides.

Adding building classification codes in Archicad

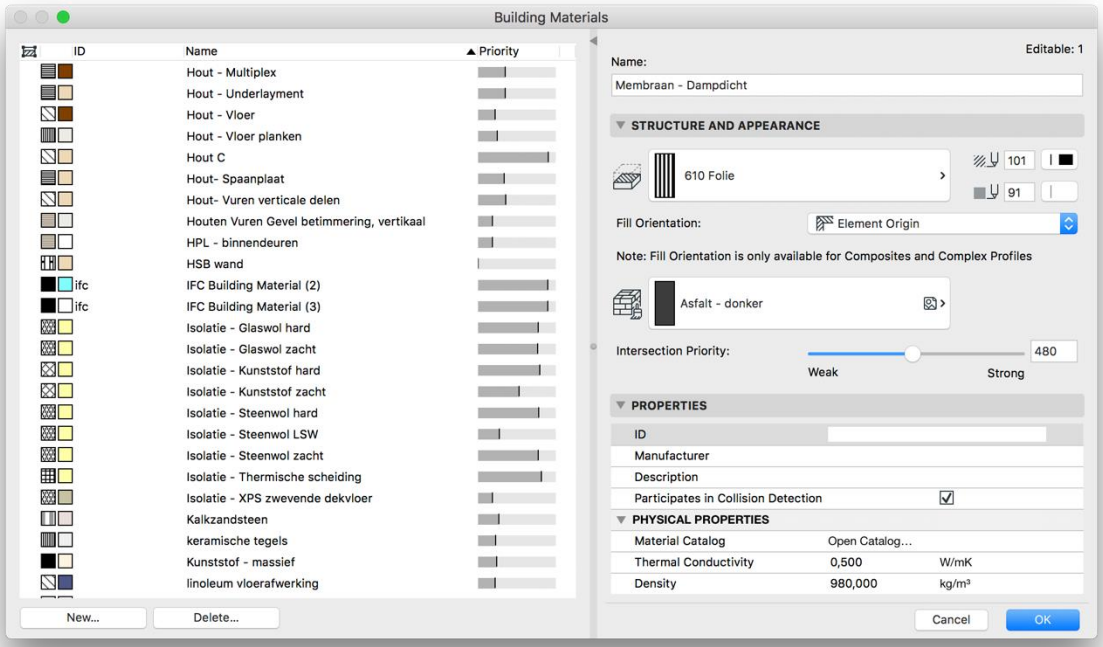
Please note that the Madaster platform currently supports two building classification codes, being (1) the Dutch NL/SfB classification and (2) the international OnmiClass (table 21) classification.

A classification structure can be added in the Category and Properties in the selection settings of an object. Open *Manage IFC properties* and activate the *Apply predefined Rule*. In this last screen activate the classification *specific coding tables* (with the level of detail). The last step is to indicate which specific classification encoding the object in question has.



Adding materials in Archicad

To create a proper materials passport from a 3D model, it is important that all elements are created in 3D and have a material assigned to them. Materials are defined in Archicad in the *Building Materials* (new materials are allowed). It is important that materials contain a clear naming in which the material definition is described (e.g. concrete, stone wool, etc.). The materials can be linked directly to an object or element or can be used in a composite where a composition of materials is made.

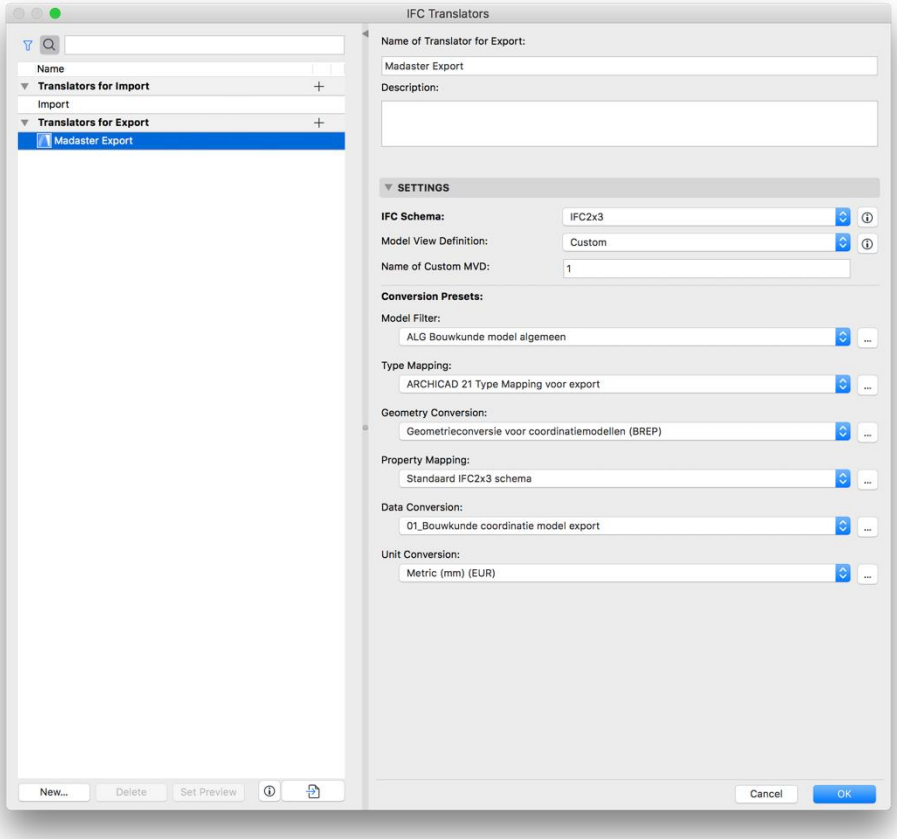


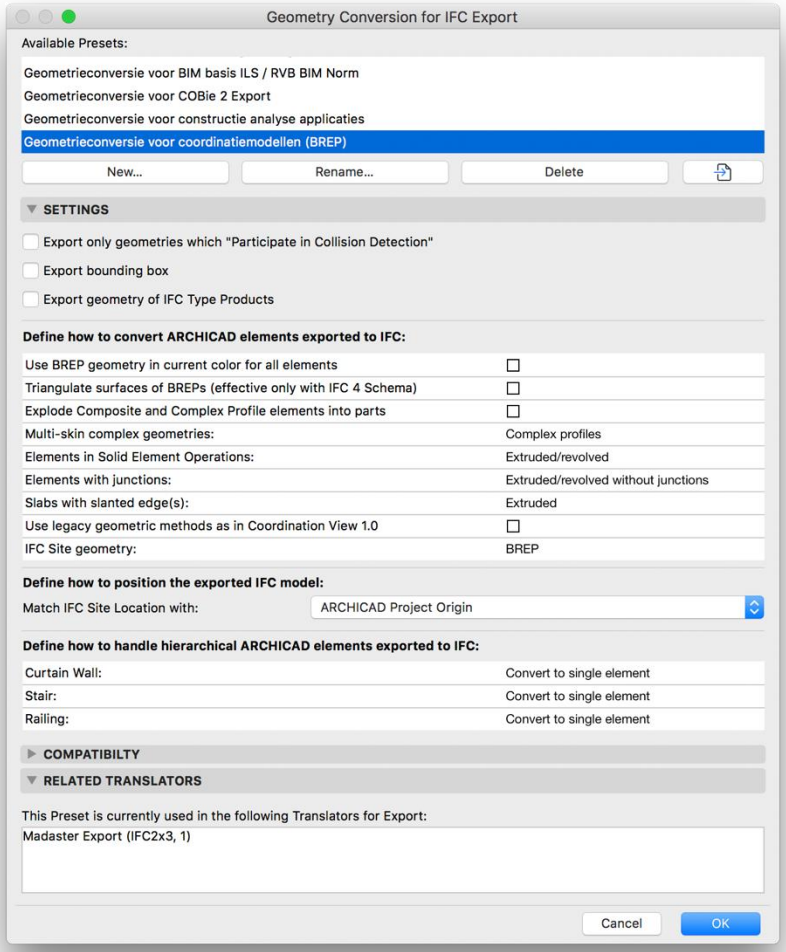
IFC export Archicad

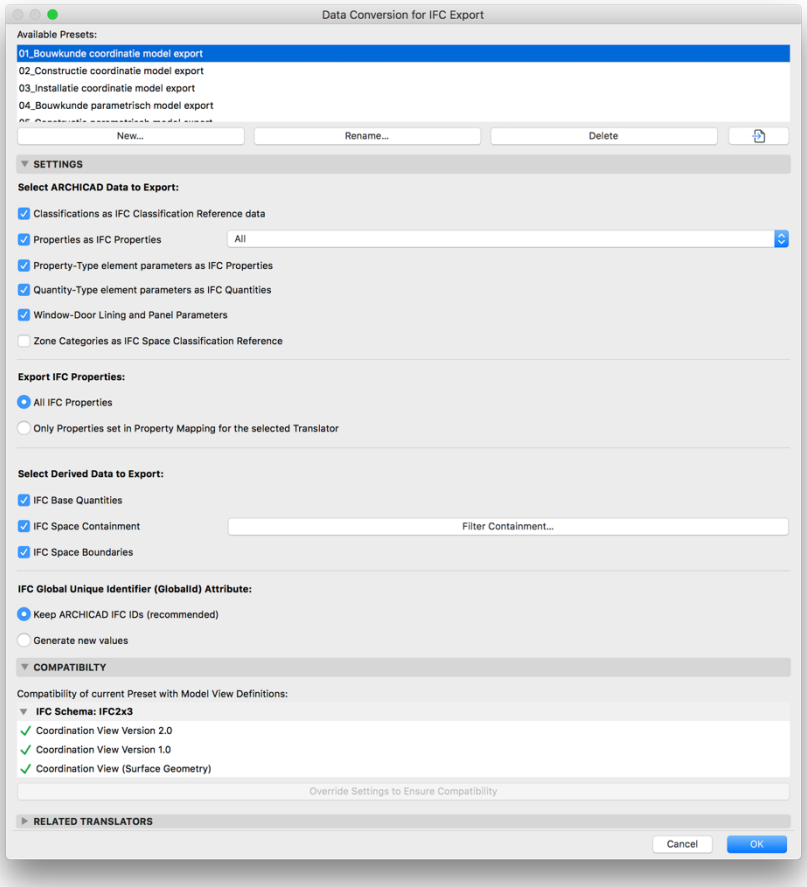
Under *Save as* you can save the file as an IFC file. This can be done by selecting *IFC files* at the *Format*. Additionally, a correct translator needs to be set. This can be done in two separate ways: (1) manual set-up or (2) automatic set-up (download).

Manual set-up 'IFC export'

The manual set-up starts with the creation of a new translator by clicking *Create new* and saving the settings. In addition, all parameters (including tabs) must be set correctly as displayed below (see figures). It is important to select the tick box *IFC Base Quantities* in the data settings. Subsequently, press the button *save settings & close* and create an IFC file with the correct settings.

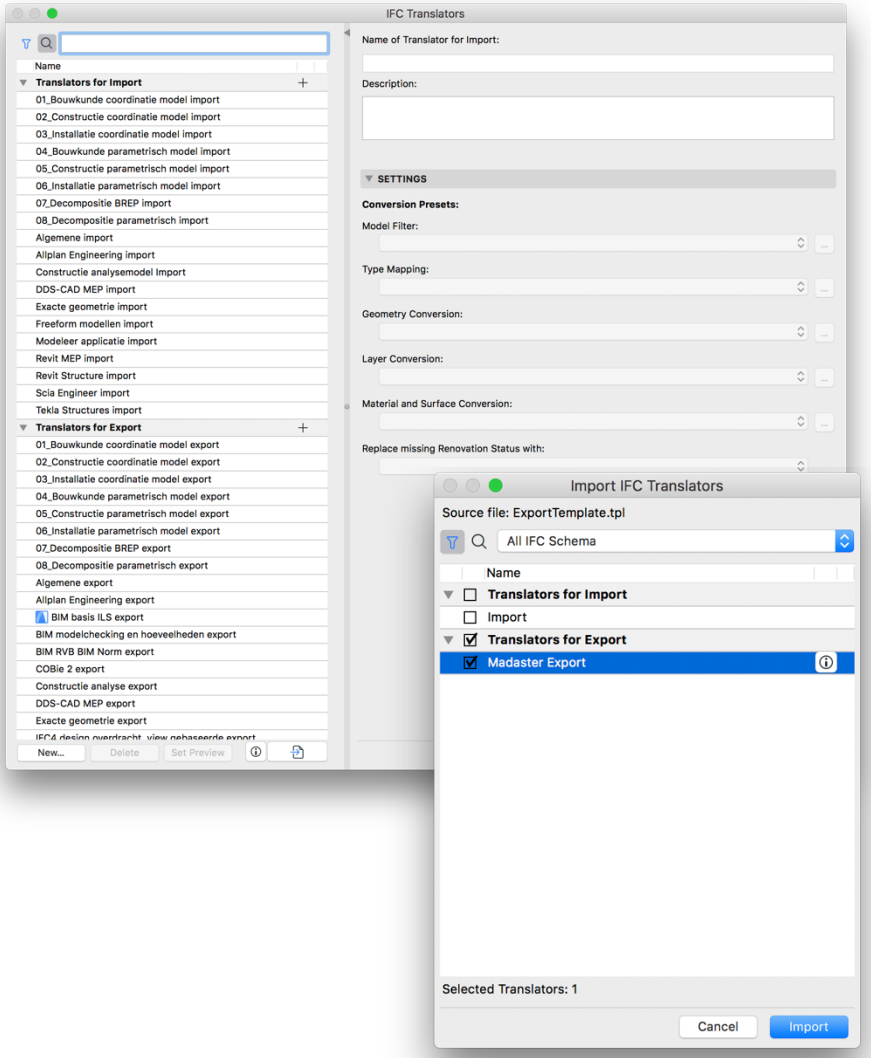



Geometry Conversion for IFC Export
Available Presets:
Geometrieconversie voor BIM basis ILS / RVB BIM Norm
Geometrieconversie voor COBie 2 Export
Geometrieconversie voor constructie analyse applicaties
Geometrieconversie voor coordinatiemodellen (BREP)
New...
Rename...
Delete
SETTINGS
Export only geometries which "Participate in Collision Detection"
Export bounding box
Export geometry of IFC Type Products
Define how to convert ARCHICAD elements exported to IFC:
Use BREP geometry in current color for all elements
Triangulate surfaces of BREPs (effective only with IFC 4 Schema)
Explode Composite and Complex Profile elements into parts
Multi-skin complex geometries: Complex profiles
Elements in Solid Element Operations: Extruded/revolved
Elements with junctions: Extruded/revolved without junctions
Slabs with slanted edge(s): Extruded
Use legacy geometric methods as in Coordination View 1.0
IFC Site geometry: BREP
Define how to position the exported IFC model:
Match IFC Site Location with: ARCHICAD Project Origin
Define how to handle hierarchical ARCHICAD elements exported to IFC:
Curtain Wall: Convert to single element
Stair: Convert to single element
Railing: Convert to single element
COMPATIBILTY
RELATED TRANSLATORS
This Preset is currently used in the following Translators for Export:
Madaster Export (IFC2x3, 1)
Cancel
OK


Data Conversion for IFC Export
Available Presets:
01_Bouwkunde coordinatie model export
02_Constructie coordinatie model export
03_Installatie coordinatie model export
04_Bouwkunde parametrisch model export
New...
Rename...
Delete
SETTINGS
Select ARCHICAD Data to Export:
Classifications as IFC Classification Reference data
Properties as IFC Properties All
Property-Type element parameters as IFC Properties
Quantity-Type element parameters as IFC Quantities
Window-Door Lining and Panel Parameters
Zone Categories as IFC Space Classification Reference
Export IFC Properties:
All IFC Properties
Only Properties set in Property Mapping for the selected Translator
Select Derived Data to Export:
IFC Base Quantities
IFC Space Containment
Filter Containment...
IFC Space Boundaries
IFC Global Unique Identifier (GlobalId) Attribute:
Keep ARCHICAD IFC IDs (recommended)
Generate new values
COMPATIBILTY
Compatibility of current Preset with Model View Definitions:
IFC Schema: IFC2x3
Coordination View Version 2.0
Coordination View Version 1.0
Coordination View (Surface Geometry)
Override Settings to Ensure Compatibility
RELATED TRANSLATORS
Cancel
OK

Automatic set-up (download) 'IFC export'

Alternatively, Madaster provides a pre-set IFC translator that can be imported in the Archicad application (using the import button). When importing this translator, it is important that the Archicad project template can be selected. By selecting the tick box of the Madaster export, this it is loaded into the model. Subsequently, you can confirm the settings by clicking the button *save settings & close*. After this, you can export the IFC file.



Import settings ‘IFC export’ IFC model check

Before uploading your IFC model on the Madaster platform, it is recommended that you check the completeness (in terms of NL/SfB coding, Base Quantities, Material assignment, etc.) beforehand. To do so, you can use the BIMcollab ZOOM IFC Viewer with Madaster smart views.

BIMcollab Zoom & Madaster Views

The BIMcollab ZOOM IFC Viewer and Madaster smart views are available for download free of charge. After installation of this software, you can load the pre-programmed Madaster smart views using the Import button. By opening your own (IFC) model, it can be validated for completeness by using the Madaster smart views.