



EXCHANGE COORDINATE BUILD

BIM Equity

BIM Workflow Guide

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Introduction

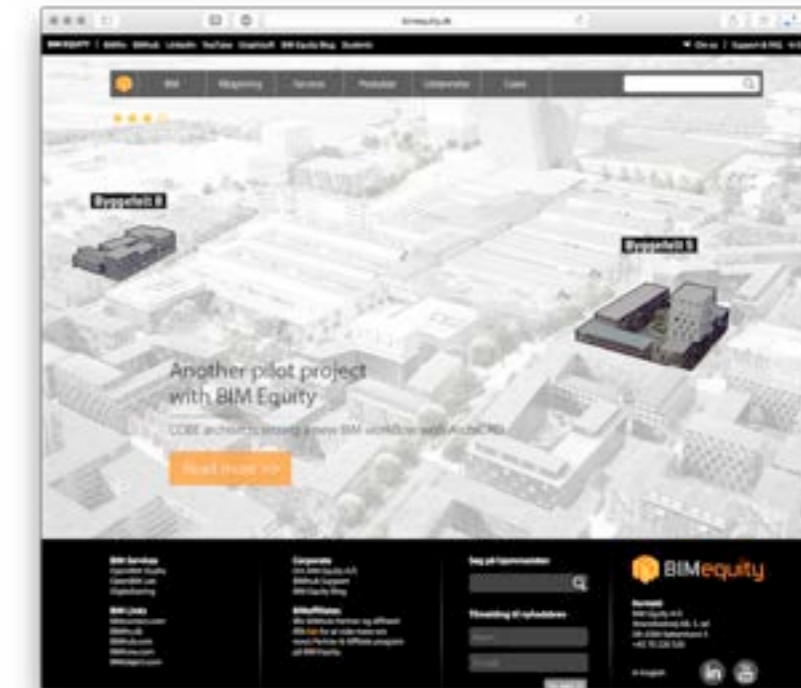
Welcome to book 3 in the BIM Workflow Guide

This guide will train you in collaborating with other disciplines, performing quality assurance, quantity take-offs and other processes leading to the building of the project.

This guide can be used both for new users for their first trainings and as a summary of the training activities.

Happy BIMing!

Cover image: The David Hockney Building for Bradford College / Bond Bryan Architects



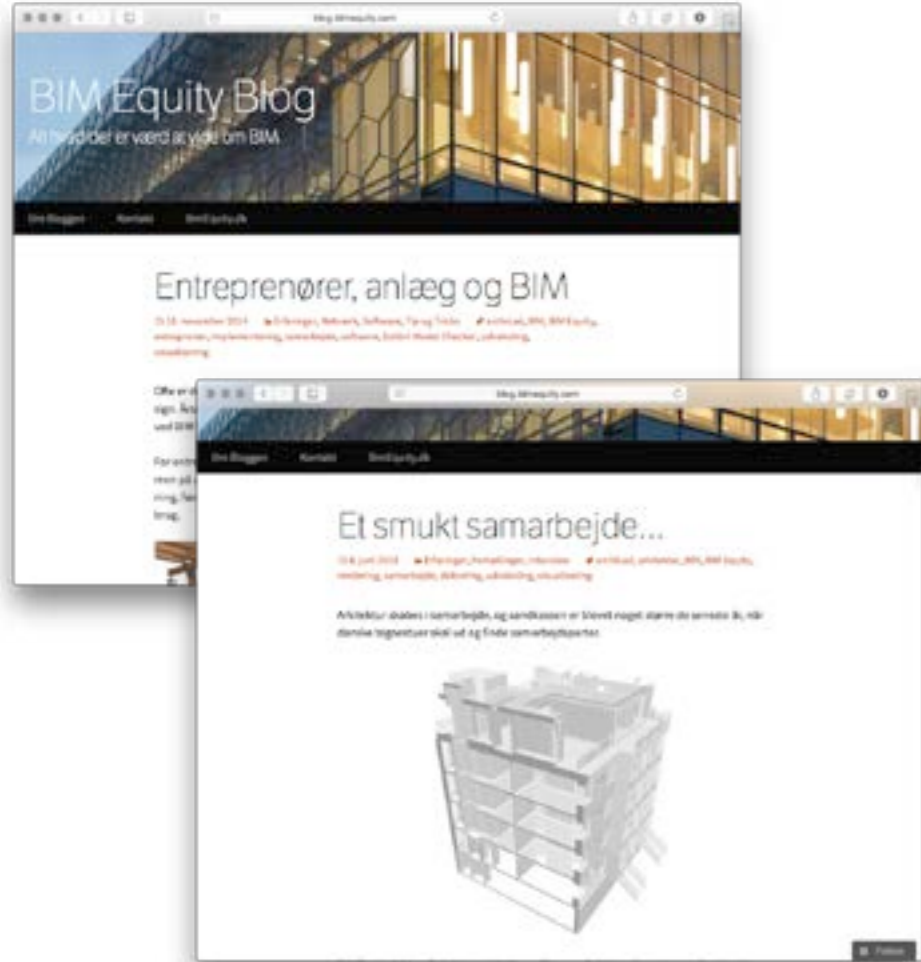
Download the ArchiCAD trial on myarchicad.com and get the free advanced template on bimequity.dk.

 **BIMEquity** BIM WORKFLOW GUIDE

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WELCOME TO PART I: EXCHANGE

In this chapter various methods of exchanging models and project data is discussed.

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EXCHANGE

1.1 IFC import and export

As a project progresses from sketch to proposal the need to collaborate with other disciplines increase. Also the fact that open BIM is actively being supported by major software vendors calls for technologies that can make the transfer of models easy and reliable.

For this IFC (Industry Foundation Classes) is the proven and recommended format to use. Originally developed by Autodesk and now managed by the buildingSMART foundation, the format uses a scheme of common (thus "Foundation") building element types and information fields (Classes) that BIM authoring softwares (in the building "Industry") can write standardized data into - putting the data in a place where every other IFC enabled software is able to find it and translate it into real geometry and parameters.

Simply put beams are translated into ifcBeams, windows into ifcWindows and slabs into ifcSlabs, all retaining their original BIM data such as heights, opening direction, fire ratings and other added parameters.

Just saving an IFC from ArchiCAD is very straight forward, like saving an image or schedule simply go into 3D and select the menu option File > Save as.. now change the Format to "IFC 2x3 file". Notice that as with DWG export you are given a choice of translators.

A Translator is simply a collection of export and import settings making it possible to quickly tweak the resulting IFC file. Browsing through the list you'll see familiar applications such as Vectorworks, Tekla Structure and Revit.

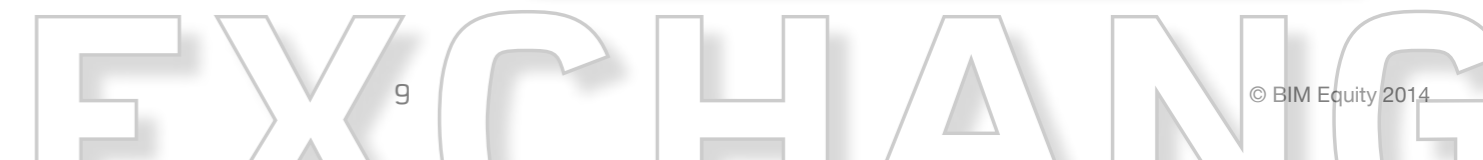
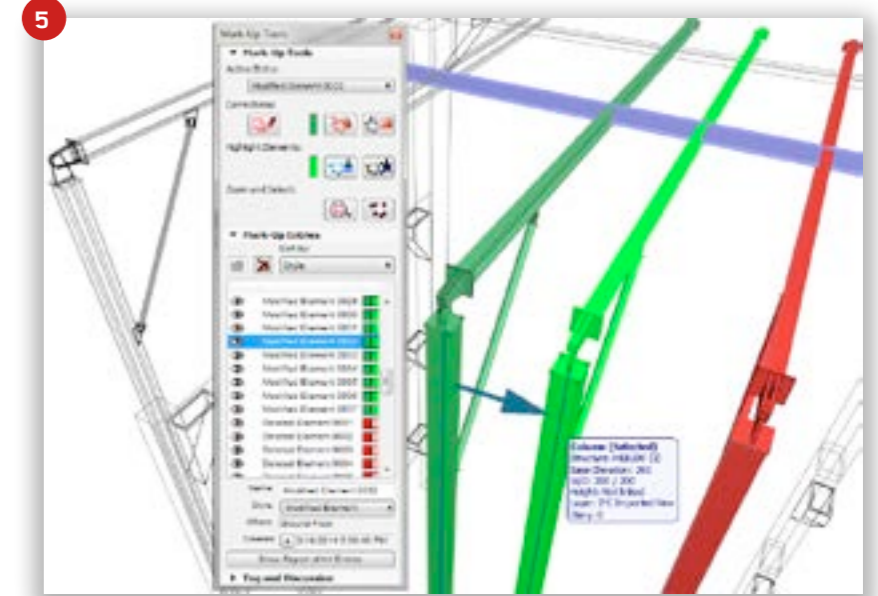
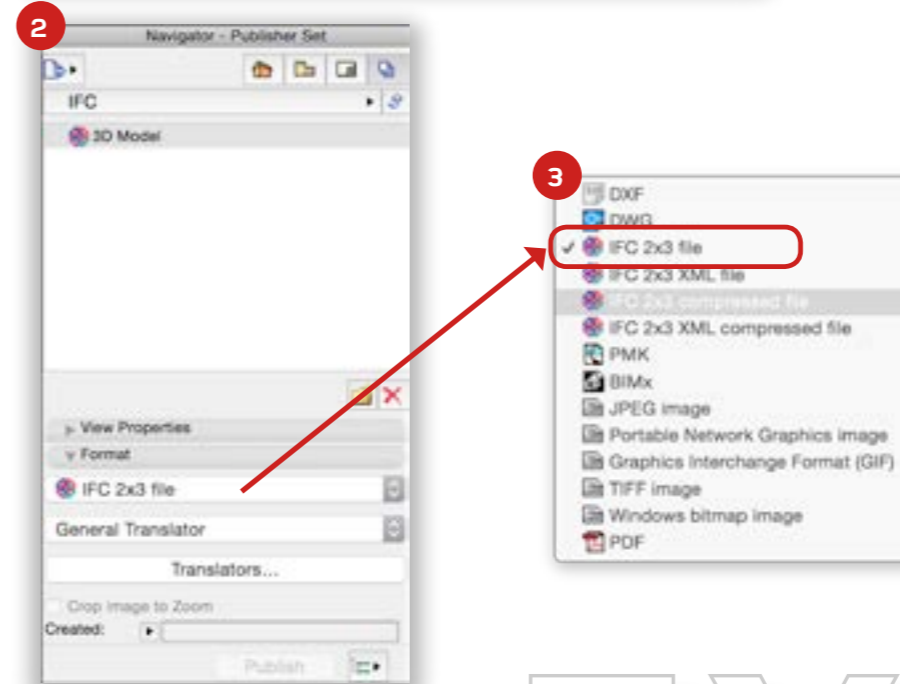
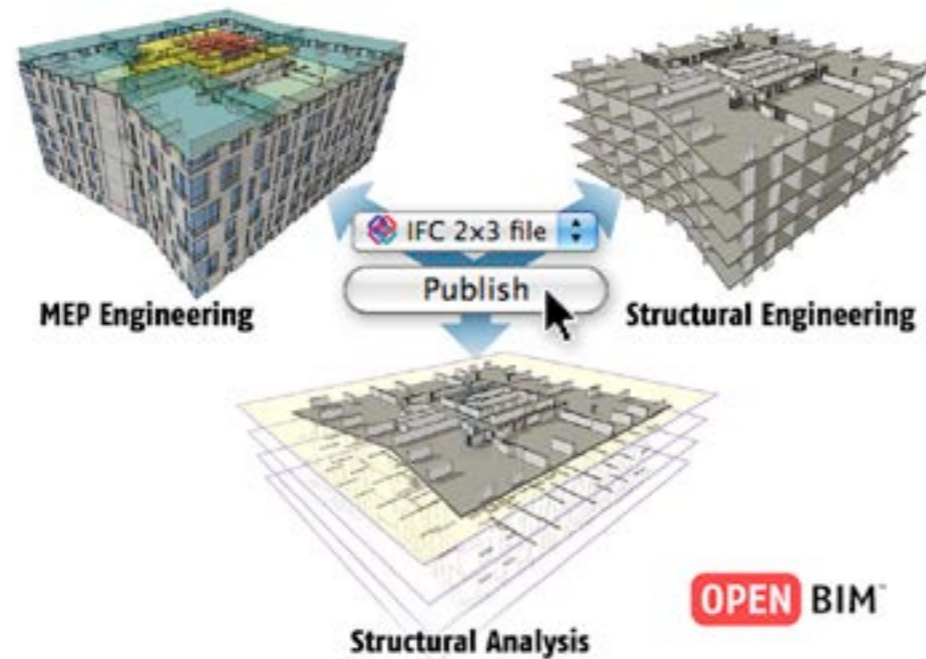
Select the appropriate translator, if in doubt "Coordination View" usually creates a very precise model.

In some cases the involved parties already know their roles very early on and can therefore benefit from starting the exchange before anything has been modelled, this ensures the project zero and rotation is correct, something that can be timeconsuming to fix later in the process. Also placing a cube or "trivial pursuit cheese" with each discipline having a color coded piece ensures that the different discipline models will fit together perfectly later in the project when combining them for reference modelling or model checking.

A suggestion for easily controlling the IFC output from export to export is to make a Publishing set for this task. Simply shift to 3D, turn of layers and select a fitting modelview plus other view options (1) - then save the 3D view and drag it into the IFC publishing set. (2)

Set the format to "IFC 2x3 file" (like in the manual export). Edit the name of the IFC model to something fitting, note it's possible to add autotext if right clicking the file and selecting "Rename Items..." (3)

If exchanging a IFC file with a structural engineer or collaborating with another studio using another BIM authoring package than ArchiCAD. The "Detect Model Changes" function can compare two versions of an IFC file originating from the same application (4). When using the function it uses the Mark-up tool to color code these elements, so information about the changes can be tracked and even transferred to other files. (5)



EXCHANGE

1.2 BIMcontact

Managing model files and drawing material on larger projects can be a daunting task, even when using a dedicated system.

Enter BIMcontact, with the simplicity of Dropbox and other cloud based services coupled with a powerful automatic document tracking and revision system, user spaces and messaging the platform eases up what can otherwise be timeconsuming and error prone.

BIMcontact help building industries to improve the project workflow, optimal utilization of resources, online handling of documents including IFC files and reaching project deadlines on time.

All information is kept in a single location without compromising security, provided any time, anywhere access and ability to share the information easily and act as the nerve center when it comes to planning, communication and collaboration.

BIMcontact is a web-based application and can be used on Windows, Mac, Smart Phones and Pads using most common web-readers like Internet Explorer, Chrome and Firefox.

BIMcontact offers two different modules:

BIMcontact Base; An ideal solution to manage tasks, contacts, internal communications and files related to projects including IFC and component objects used by BIM modelling tools. BIMcontact Base also comes with Metadata & Smart folders for file handling, briefing board & message centre for increased communication and calendar for effective project related meetings.

BIMcontact Extended; In addition to the features included in BIMcontact Base, it is suitable for companies that are looking for project collaboration, activity planning, Gantt charts, resource management and time tracking through online, desktop & mobile interfaces. BIMcontact Extended provides cost management of activities and comes with the entire gamut of project management.

To start using BIMcontact there is a free trial option that you can apply for at www.bimcontact.com.

When you have received the confirmation mail you can login and start using BIMcontact.

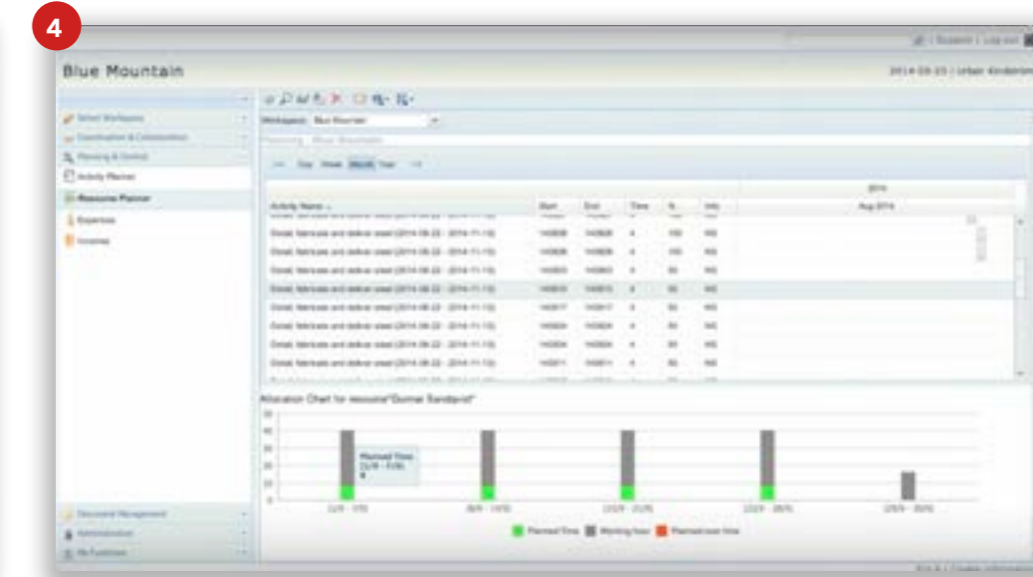
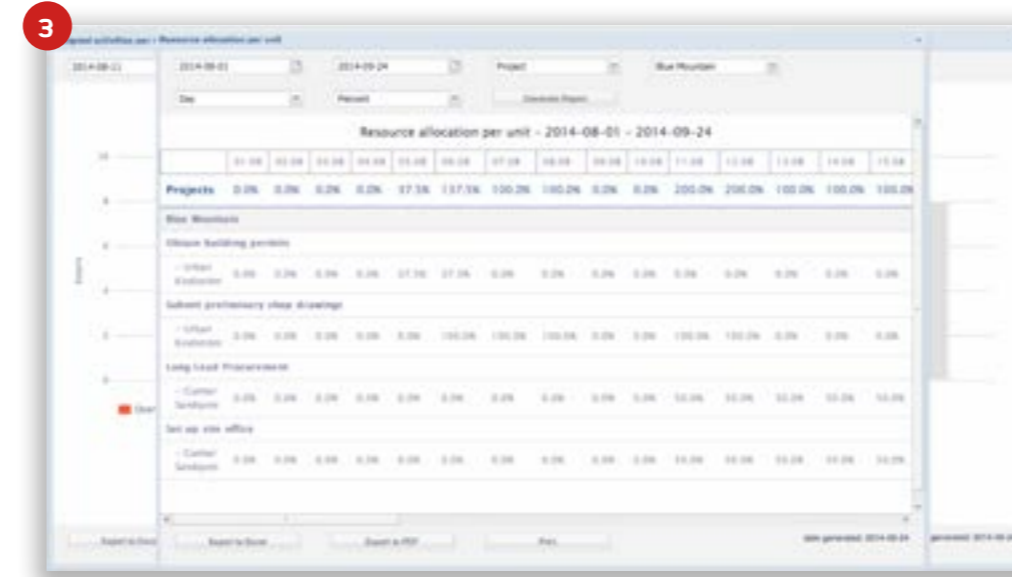
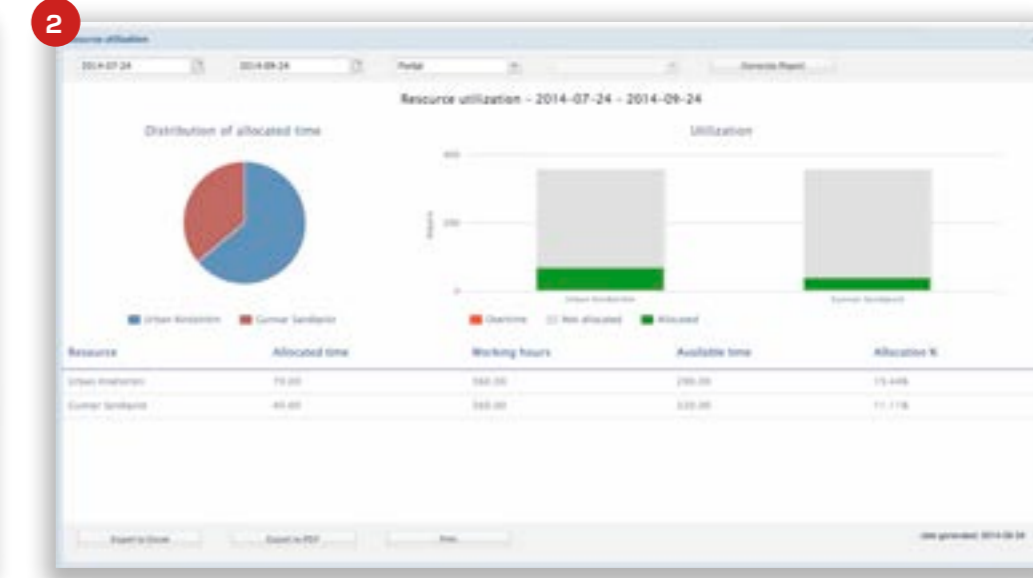
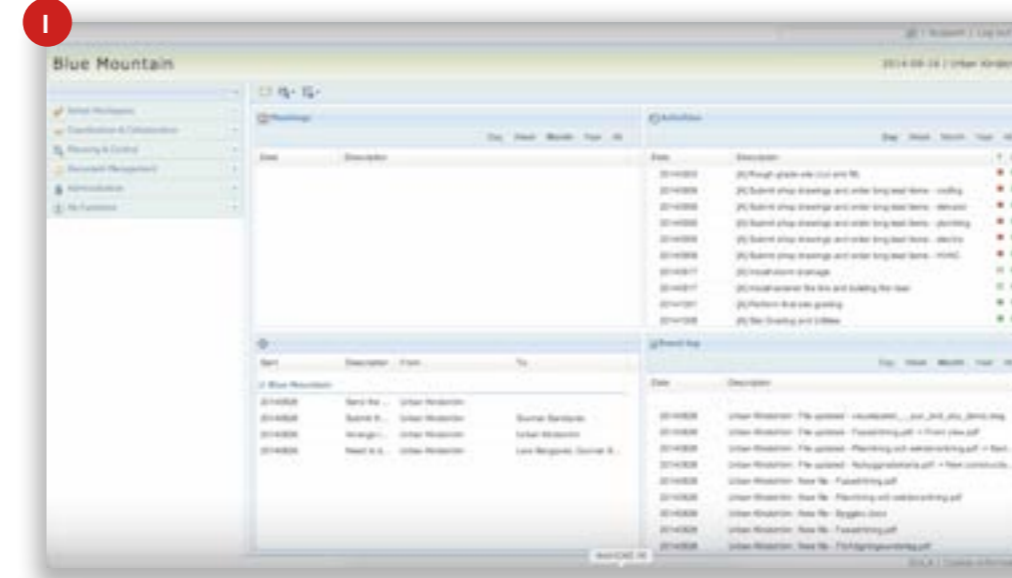
The first screen you'll see is the "Lobby", this is a dashboard of all activity on projects or "workspaces" you are joined ranging from calendar, task and activities. You can also quickly jump an accessible a workspace in the pane to the left.

Underneath the "Select Workspace" pane you'll find additional areas, each containing tools to solve different project related tasks.

Namely "Planning and Control" is interesting since it contains the Resource Planner tool. With this you can connect tasks with personnel, visualize resource use (2) and get detailed reports on delegated tasks. (3) + (4)

Using the optional desktop client you can set a folder to automatically synchronize documents with BIMcontact, intergrating the system directly with your daily workflow, automatically generating revisions in the system when files are updated.

All in all the combination of easy document handling and resource management makes BIMcontact a great choice for any company looking to streamline these functions.



1.3 Revit collaboration

Working in BIM not only means working in ArchiCAD. The openBIM principle advocates interoperability across platforms and disciplines. As mentioned before in the guidebooks IFC is currently the most versatile and robust fileformat.

To get even better results when exchanging models Graphisoft have created the “ArchiCAD Connection” add-in which is a free Add-In for Autodesk Revit softwares (including Revit Structure, Revit MEP and Revit Architecture).

The Add-In improves the IFC model-based and bi-directional data exchange between GRAPHISOFT ARCHICAD and Autodesk Revit applications.

The GRAPHISOFT ARCHICAD Connection Add-In has two functions:

- Improved IFC Import” imports IFC models to Revit using extra features that improve the interpretation of architectural models
- Export to ARCHICAD” exports Revit model elements in IFC files that are specially enhanced for use in GRAPHISOFT ARCHICAD.

Additional features:

- Import of all Attributes, Properties and Classification Reference data of the IFC model elements as schedulable Revit parameters
- Controllable automatic joints among walls and columns at IFC import
- Correction of Phase Filter settings for all views at IFC import
- Export of elements based on Revit’s phase status
- Export of 2D annotation elements
- Export of element parts as standalone building elements
- Schedule data export as IFC properties
- Export of Family and Type name as Reference property
- Both import and export support the compressed IFC format (IfcZIP) in addition to the normal IFC file format

Also on the Revit side make sure you’re using the Autodesk®’s IFC 2015 import-export app for Revit. This add-in enables both IFC export and IFC export UI overrides, which contains options not available in the regular UI, such as ifcXML and ifcZIP support. (1)

Going further it is possible to tweak the export and import settings of IFC files and storing the settings in so called “Translators”.

Open the IFC Translation Setup from “File > File Special > IFC 2x3”

The settings window open and you’ll see a host of different translators that are already installed and ready to use. Note the “Project” and “Partner” columns, when creating a Translator you can fill out these fields and dedicate the translator to a specific par

The “general translator” is a one-size fits all option that works in most cases, besides this there are special optimized Translators for collaboration with Autodesk, Bentley, Tekla and other BIM authoring packages. (2)

Use the “Duplicate” button to make a copy of a Translator (3). The “Rename..” and “Delete..” buttons does exactly what they state and the “Browse...” button can be used to import shared Translator files.

Looking into the options the Import/Export Filter options control what is actually handled in the creation of the IFC model - for instance certain element types can be omitted. (4)

In the Import Options you can control how IFC objects are created inside ArchiCAD, you can control which layers objects are placed on, you can map ArchiCAD materials to IFC materials by IFC paramater (you can even load in the IFC file first into the mapping interface, using paramater names and setup the mapping before importing) and lastly the renovation status can be set.

These powerfull import options enables recieving an IFC model and almost seamlessly integrate it with an existing project.

Export Options include filtering, selection of Model View Definitions, filtering of exported properties, geometry export options and others. (5)

If only exchanging a reference model the BREP option under “Geometry representaion” can in most instances resolve issues with element geometry. (6)

TIP: The MEP Modeller add-on can read MEP related IFC data in imported files and create native ArchiCAD geometry.

