

Solibri or Navisworks - AU Las Vegas 2017

Class

BLD122809

Tuesday 14 November

Presenter

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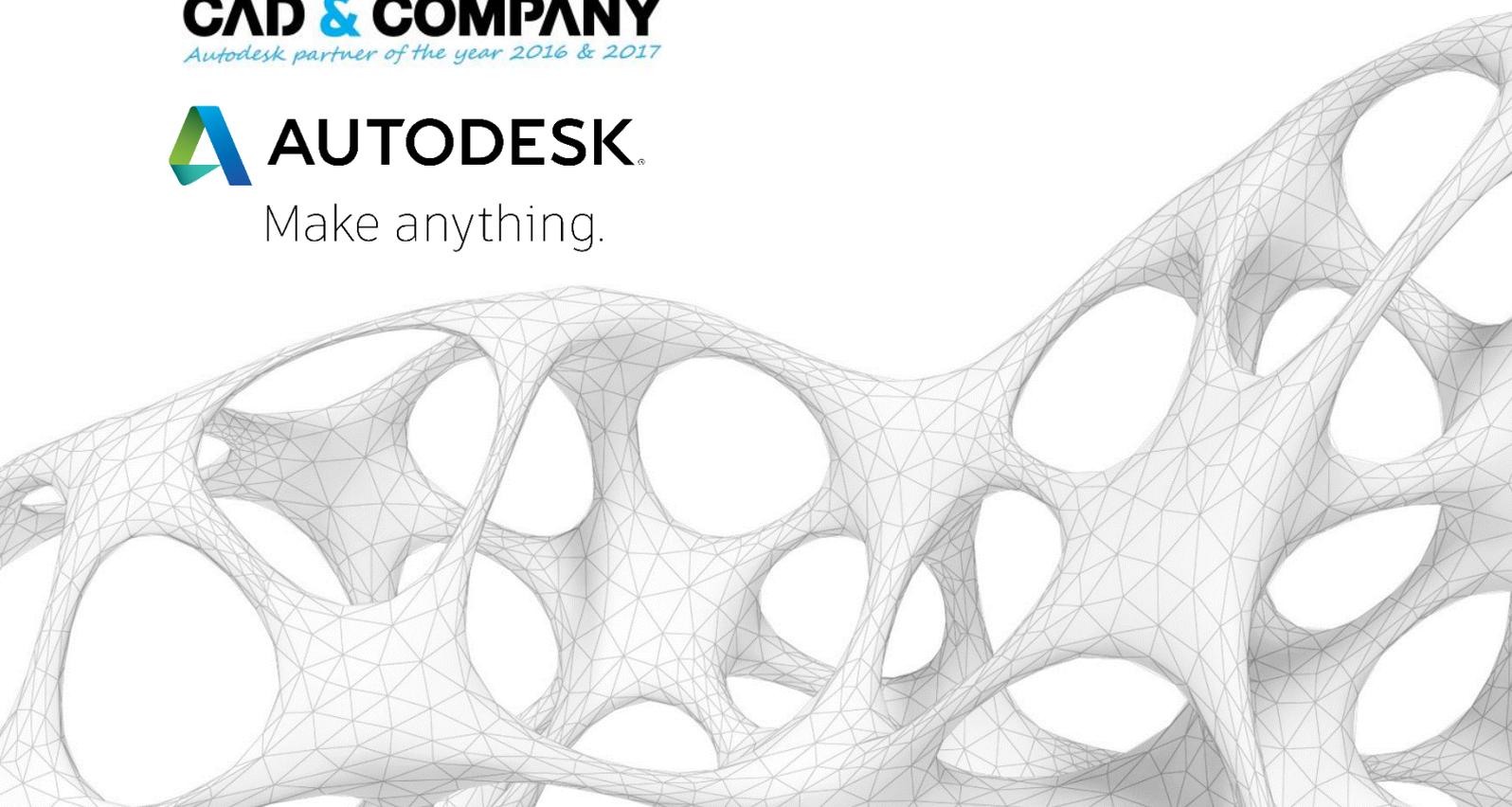
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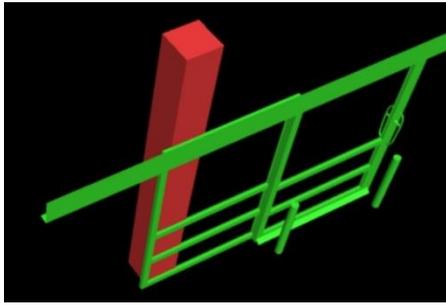
Make anything.



Description

Collaboration in construction is challenging. How can you organize the quality in data and geometry with all these different parties and models? Which software do you use to check your model: Navisworks or Solibri. An IFC workflow with Solibri provides you insights in the different clashes and the possibility to check in a rule based manner. But how do you create reports and collaborate with team members? Does Navisworks manage a more better workflow with more possibilities for everybody? With Navisworks you are free of file format. It is easy to append and update Revit, IFC, rcp or dwg files to a federated model in one single file. Checking model geometry, duplicates and data in a standardized way with Collaborea. It is the rulebased modelchecker for Naviswork. A report is no longer necessary because all the issues are visible and editable on a Cloud platform using Autodesk Forge. Checking and collaborating becomes easy and editing the models in an Autodesk workflow is simple.

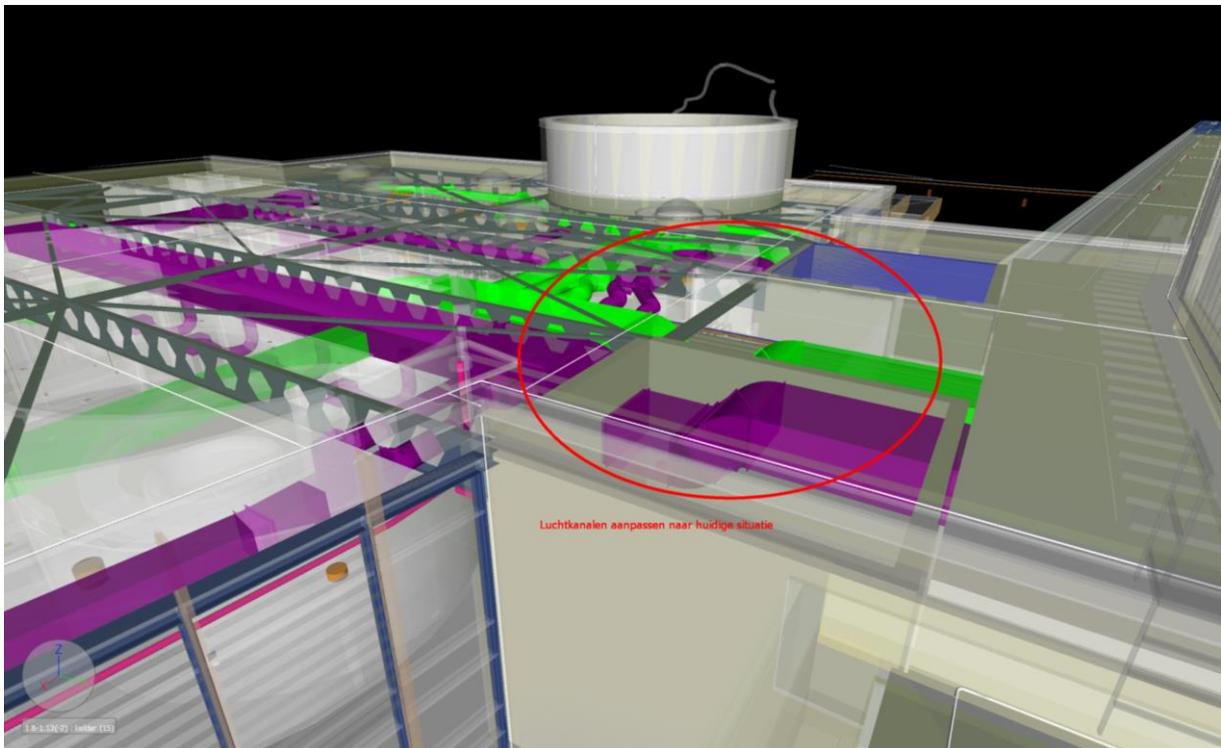
The BIM-manager role



The role as an BIM manager is crucial in getting the best out of a project. As a BIM Manager it is not only the creating a federate model to see if there are some doubles in it. It is also the clash detection between the most crucial building elements.

'Clash detection in Autodesk Navisworks'

BIM management is also about creating a collaborate environment to get the best out of all the engineers and different disciplines. How do you get the most value out of collaborate team, all with their own subject and specialism.



'Creating a collaboration environment using Autodesk Navisworks'

Besides the clash detection and collaboration there are more and more subjects in the BIM execution plan that are crucial to deliver a model that is useful in all the different phases of a building. IN most cases I found out that clash are useful but having the right parameters is crucial.

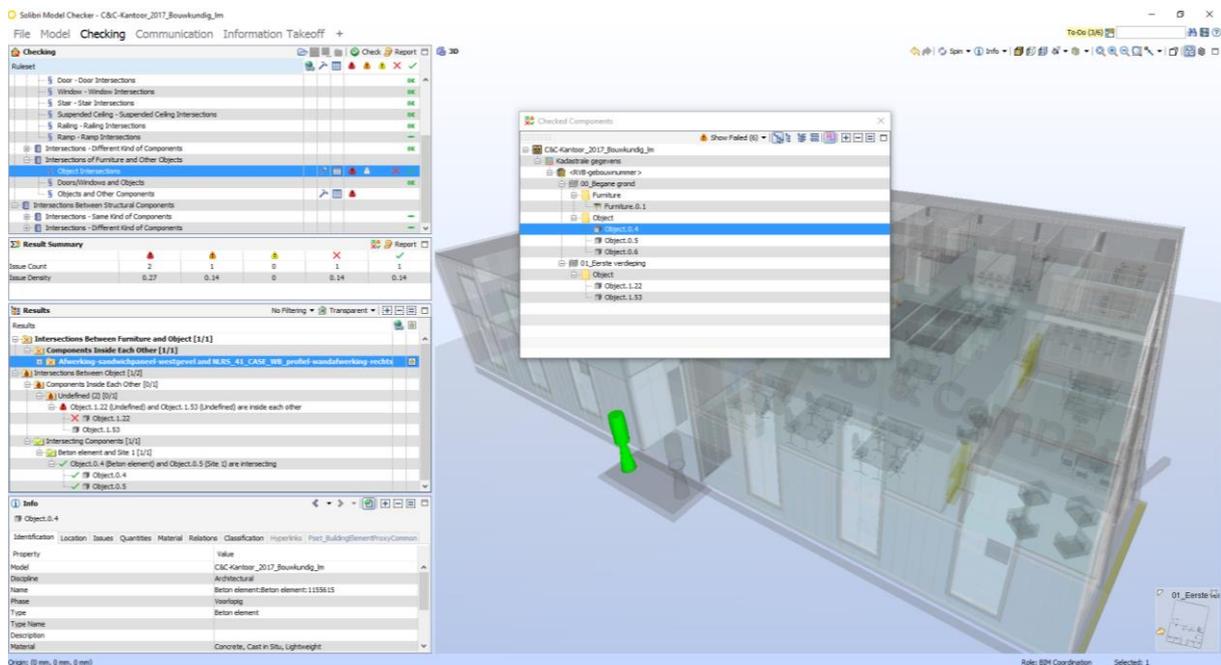
In this class for the Autodesk University I will explain the different methods and two software solutions for getting the most value out of a BIM environment. This includes Nemetchek Solibri Model Checker and Autodesk Navisworks with and without added Collaborea add in.

Nemetchek Solibri Model Checker

One of the bigger competitors in Europe to check a Building Information Model is the Solibri Model Checker. The software from Nemetchek is known for his easy to use interface and predefined rules. The rules to check the building information models are freely spread in some regions. This creates a community and easy adoption of the tool across projects.

The Solibri Model Checker covers most functions you need to explore and check a model or federated models, this includes:

- Clash detection
- Rules to search for components and materials
- Information take off
- Material quantities and volumes
- Matching models
- Changes between versions



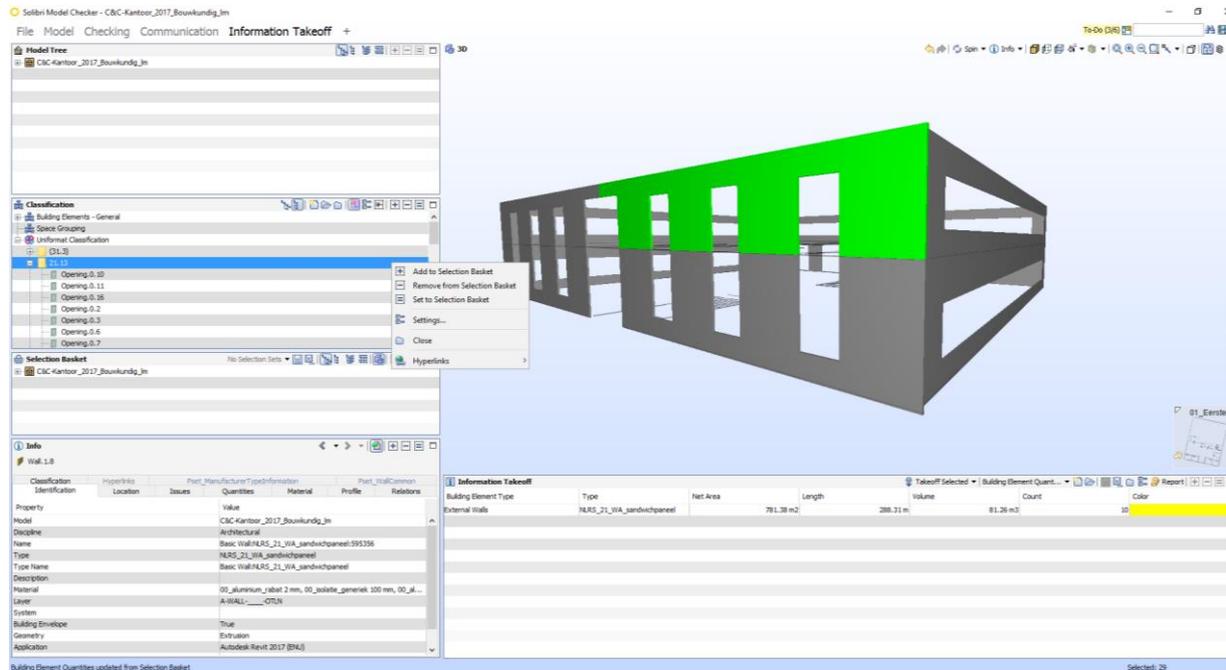
'Interface of Solibri Model Checker'

Solibri – checking and communication

When using Solibri Model Checker it is easy to use when having a lot of predefined rules. With a clear overview what to check and how the models are categorized. Getting extra detailed information is very useful. After having done an Check it is easy to accept or reject an issue. Getting a clear and correct view for an particular view is harder to create. Also unfolding the structure to the element that has an issue is much work. But what is really missed is adjusting an issue and easily assign it to the one who has to resolve it. This makes collaboration a lot of work, and a lot of user create another document to assign and discuss the issue, instead of having the discussion in the model. This is also because of the usage of only IFC Models in Solibri.

Solibri - Information take off

When loaded a IFC model it is very easy to see the different classification that are used. In multiple ways you are able to show how the model is structured and classified. When selection one or multiple categories it is just a moment away to get the information and also take off the quantities. In this way it is easy to count the different materials that are used or different doors in the project.



Solibri - Verdict

Although I didn't had any training in Solibri I was able to check my federated model. Using the predefined rules it gave me enough information. Solibri Model Checker is easy to use and gives me enough information about the model.

Strong

- Rule-based checking for:
 - Intersection
 - Information
- Take off information and quantities
- Showing geometry and dimensions

Weak

- Only IFC based
- Add extra software for collaboration – BCF based like BIM Collab

Navisworks

In the AEC Collection, or Building Design Suite Premium, everybody has an license to use Autodesk Navisworks Manage. With this software you are able to make a federated model existing from different file formats. With ability to show more then 50+ file formats, this platform is the easy access to generate an federated model containing different file formats from multiple

Autodesk Navisworks gives you the tools to do:

- Clash detection & Clash Management;
- Find items in all data fields;
- Create search sets;
- Material take off: quantities and volumes with QTO;
- Model comparison;
- Export functionalities.



Navisworks – Checking and communication

If you use Navisworks it is easy to append different models and create an environment that is able to update models with a single mouse click. When using the same 'live' models over and over it is just a single clashes test update to see how the federated model progresses. Navisworks gives the information that is available in the different file format models, and shows the different categories in the structured way. Without any rules you can choose every parameter you wish to unfold the model in a structured way. It is easy to create your own search sets with every model. Also material and geometry information is available and can be used in a Quantification workflow.

The connection with Revit on the same computer gives the opportunity to track changes and adjust the building information model in a real time environment. When working with multiple disciplines you can use predefined clash detection rules for everybody to use. When a clash detection is performed it is easily shared with an HTML report or could be seen in the Free Autodesk Navisworks Freedom version.

Features like Timeliner and QTO need some time to understand but works very well. Also the ability to connect and export the data to another platform is very strong.



Clash detection in Navisworks

Verdict Navisworks

As an BIM Manager I used Navisworks in a couple of projects. With the ability to use the native file formats it is easy to adopt and use in an environment with multiple disciplines and software vendors. Once used to the 'search sets' and 'find items' it is easy to use in a way you prefer.

Strong

- File types (50+)
- Information using search sets
- Clash detection
- Quantities and volumes
- Reporting

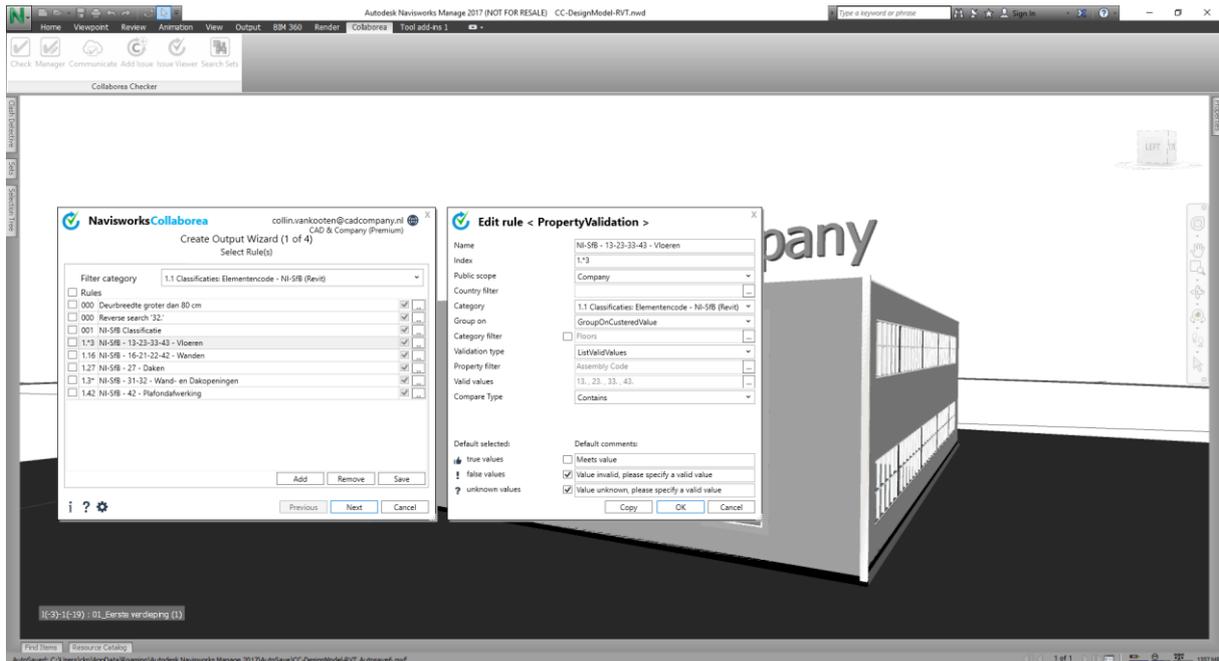
Weakness

- No rule based checking
- Collaboration still paper / e-mail based.
- 3D geometry measurement

Navisworks including Collaborea

Although Navisworks and Solibri are very strong applications they have some weaknesses. With Autodesk Forge CAD & Company was able to build an Rule Based engine for Autodesk Navisworks. But is also created an online environment to communicate issues in the building information model.

With an add-in for Navisworks and Revit, and a public website showing building information models the Collaborea workflow adds a Rule Based Model Checker to the workflow. This will gives the user the ability to not only check the model with predefined rules, it also gives a platform to create and communicate the different issues



Navisworks with Collaborea interface for creating a rule to check the building model

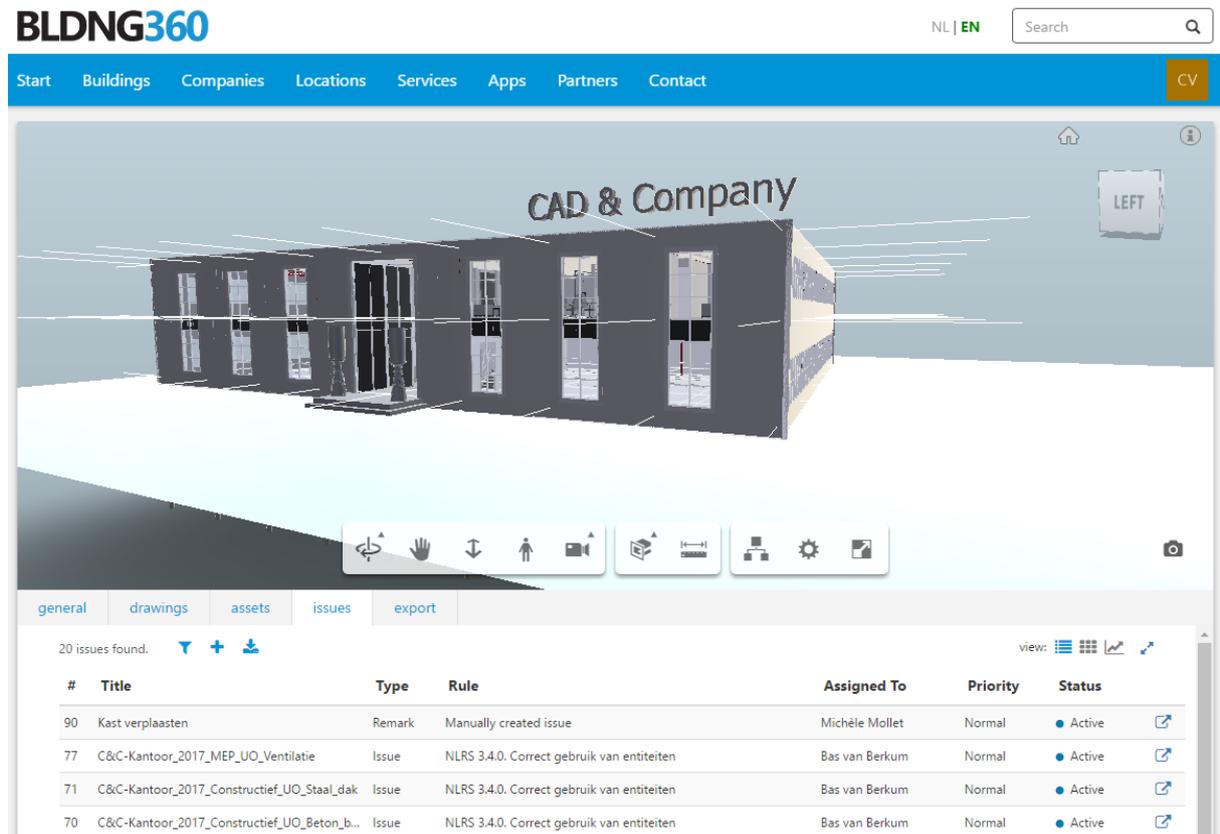
Navisworks

In Navisworks manage with the Collaborea add in it is easy to use the rules based engine. After you logged on you will be able to use the rules that are free to use in that region, or create the rules the project team. The rules can check on all the data in the project (Revit or IFC) also the clashes and the doubles.

After checking a model you can easily share the issue or false values with the project team. Each different issue can be assigned to a team member, or a group of issues can be assigned. Using the website with Forge Technology: www.bldng360.com all the team members can see the issues and add comment.

Website BLDNG360 with Autodesk Forge Technology

The public facing website shows the building information model and possible issues that are created in Navisworks. Not only the model and issues are shown, also the information available in the model. With all the assets the Forge viewer gives every user, without knowledge of Navisworks or Revit, the ability to go through the Building information model.

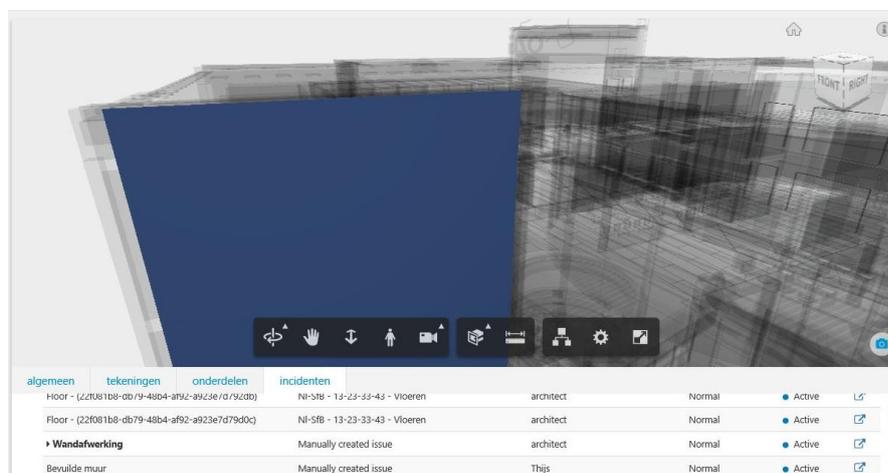


The screenshot shows the BLDNG360 website interface. At the top, there is a navigation bar with links for Start, Buildings, Companies, Locations, Services, Apps, Partners, and Contact. A search bar is located on the right. Below the navigation bar is a large 3D model of a building with the text "CAD & Company" overlaid. The model is viewed from a perspective view, and a "LEFT" button is visible in the top right corner of the model area. Below the model is a toolbar with various navigation and interaction icons. Below the toolbar is a tabbed interface with tabs for general, drawings, assets, issues, and export. The "issues" tab is selected, showing a table of 20 issues found. The table has columns for #, Title, Type, Rule, Assigned To, Priority, and Status. The issues listed are:

#	Title	Type	Rule	Assigned To	Priority	Status
90	Kast verplaatsen	Remark	Manually created issue	Michèle Mollet	Normal	Active
77	C&C-Kantoor_2017_MEP_UO_Ventilatie	Issue	NLRS 3.4.0. Correct gebruik van entiteiten	Bas van Berkum	Normal	Active
71	C&C-Kantoor_2017_Constructief_UO_Staal_dak	Issue	NLRS 3.4.0. Correct gebruik van entiteiten	Bas van Berkum	Normal	Active
70	C&C-Kantoor_2017_Constructief_UO_Beton_b...	Issue	NLRS 3.4.0. Correct gebruik van entiteiten	Bas van Berkum	Normal	Active

www.bldng360.com environment with Autodesk Forge technology

It will also give the user the ability to add an issue on the website. Issues are added to specific element and are shown as an isolated and selected element on the website but also in Revit and Navisworks. The issues are export to BCF to also include other software vendors.

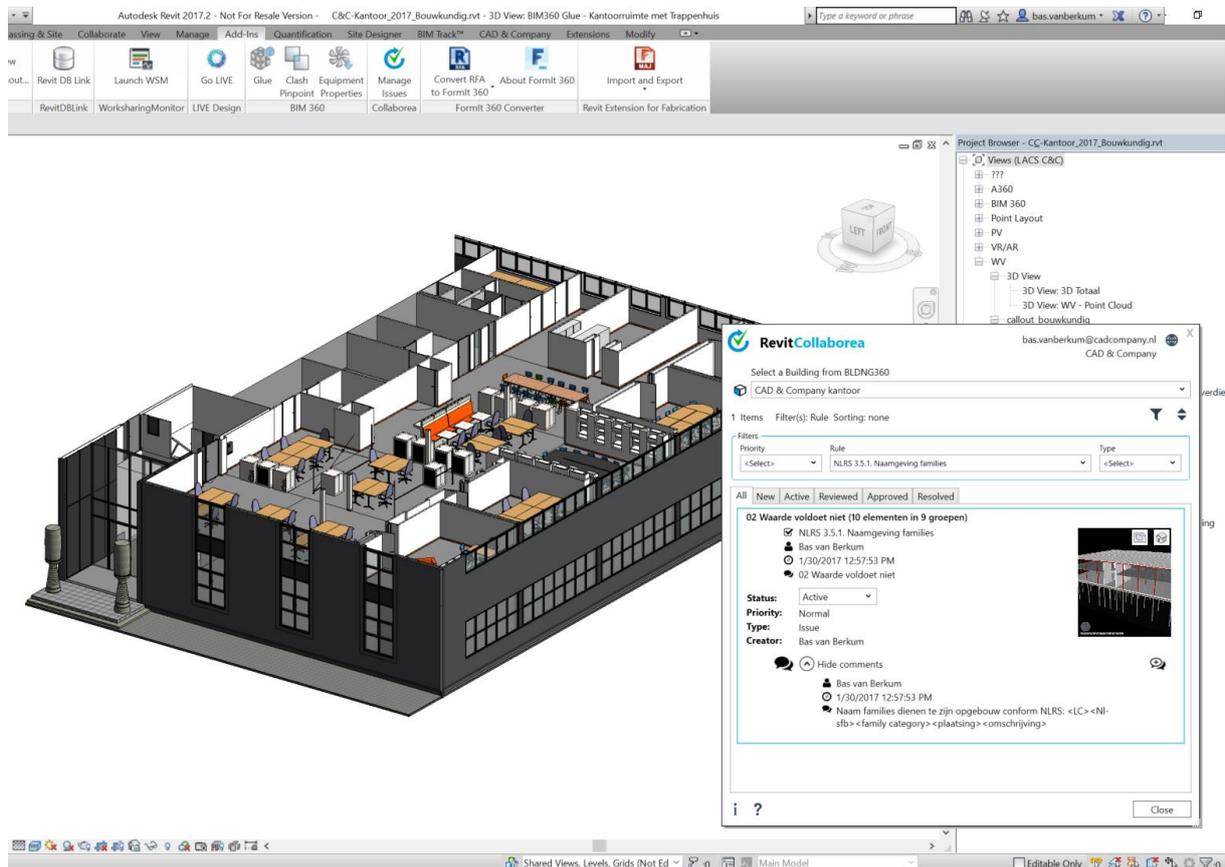


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algemeen	tekeningen	onderdelen	incidenten			
Hoor - (227081b8-d079-48b4-af92-a923e7d79d0c)			NI-SFB - 13-23-33-43 - Vloeren	architect	Normal	Active
			Floor - (227081b8-d079-48b4-af92-a923e7d79d0c)	NI-SFB - 13-23-33-43 - Vloeren	architect	Normal
			Wandafwerking	Manually created issue	architect	Normal
			Bevuilde muur	Manually created issue	Thijs	Normal

Revit

The Collabora add-in in Revit has a bidirectional connection with the bldng360 website. It will show the issues assigned to the user. With the right model in Revit, selecting the issue in the interface will select the element in the model. Adjusting the model to the right data or clash avoiding is easy in the way. Once adjusted the issues, you can change the status of the issue, which will be shown on the website immediately.



Navisworks with added Collabora workflow

After exploring different possibilities, having an environment with multiple file formats, Navisworks with the added rulebased modelchecker gives the right workflow and flexible way to check a federated model:

- Rule-based checking for all data, intersections and duplicates;
- Take off any information available;
- Collaboration between all parties by Autodesk Add-in, Website and BCF export and Import;
- Export data capability from Autodesk Forge viewer;
- For all team members, not only BIM managers of engineers .

Thank you very much,

Collin van Kooten.