

The background of the slide features a complex, abstract wireframe mesh structure. This structure is composed of numerous interconnected triangles and polygons, creating a fluid, organic shape that resembles a stylized, flowing architectural element or a natural form like a root system. The mesh is rendered in a light gray color against a white background, with some areas appearing slightly more opaque than others, giving it a three-dimensional feel. It spans the entire width of the slide, with a solid blue horizontal band cutting across its middle to accommodate the text.

BLD124689 - Reaping the Benefits of the Cloud

Marius Alnes

Civil Engineer / BIM Specialist

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Class summary

- This class will demonstrate what Collaboration for Revit (C4R) is, and how the integration with BIM 360 Team works.
- Tips and workflows using C4R in large scale multidisciplinary projects.
- How to communicate and collaborate in the cloud using BIM 360 Team.

Learning Objectives

- Discover best collaboration practices in large-scale multidisciplinary projects
- Learn how to identify the potential of BIM 360 Teams, and how it transforms the traditional designing process
- Understand how to tap into the cloud with help of Forge 360
- Learn how to drive innovation and save money simultaneously

The speaker

- Civil Engineer and BIM specialist at Norconsult.
- Have been working with Revit and other Autodesk products for over 10 years.
- BIM/Revit geek, and proud of it!
- Get connected



Marius Alnes



@m_alnes

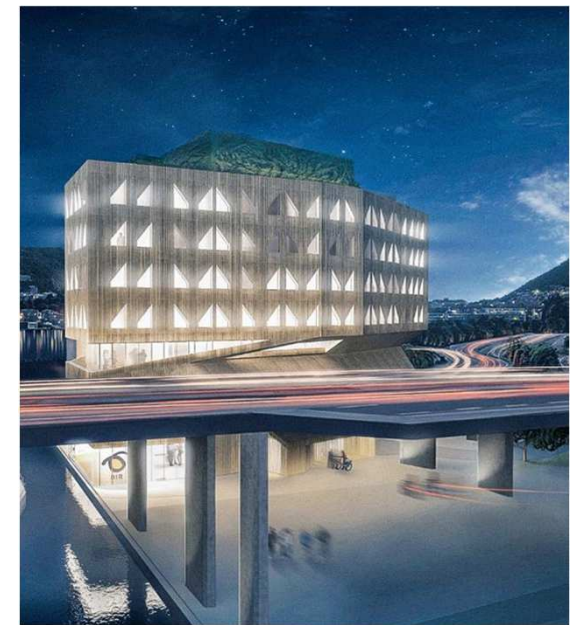


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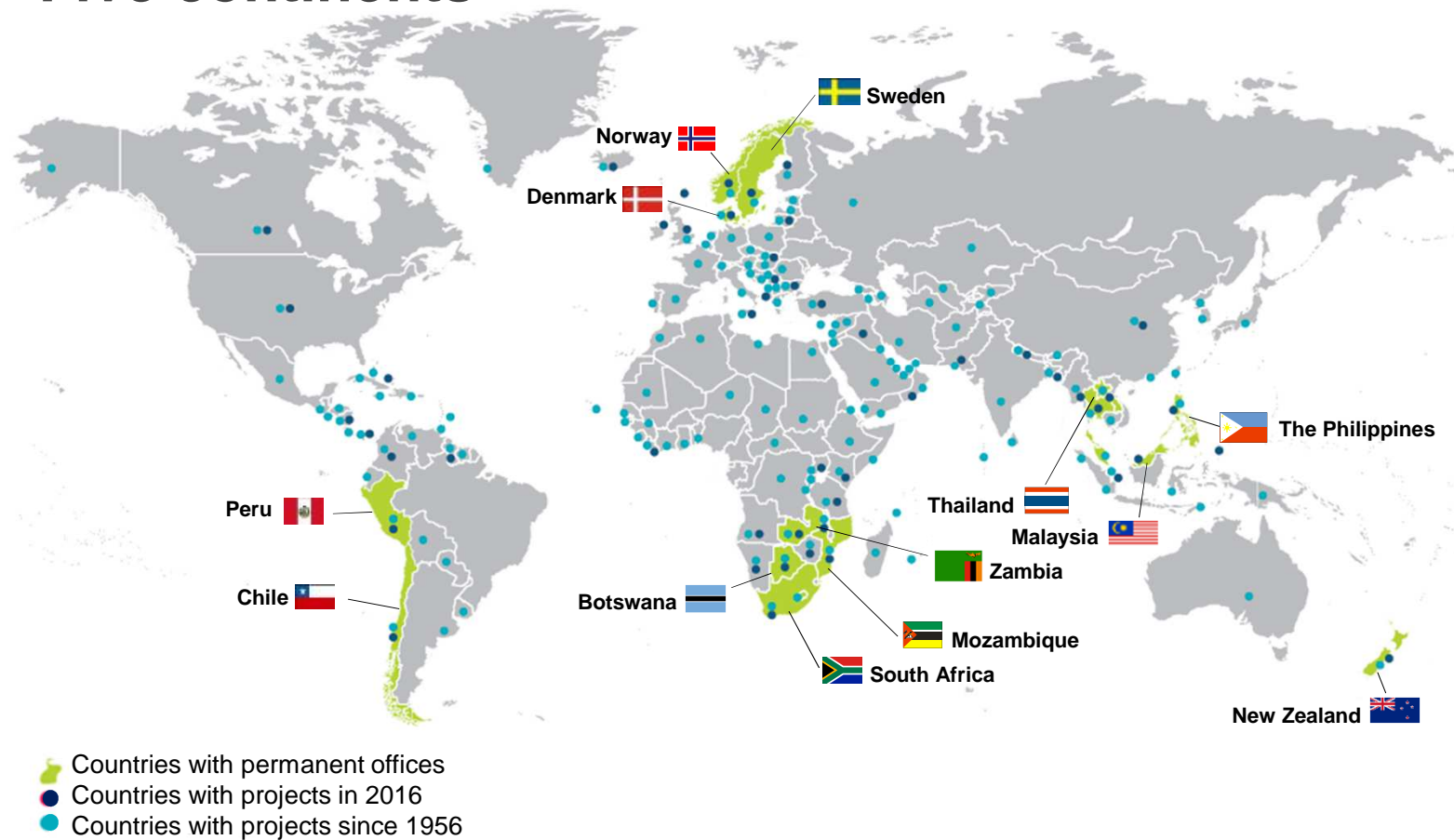
The Company

Norconsult 

- 3250 Employees
- 20 000 Projects
- 4,2 Sales MRD NOK
- 52 Countries with projects



90 offices Five continents



Market

Architecture



Buildings



Energy



Environment



Industry



IT



Oil and Gas



Planning



Risk Management



Transport



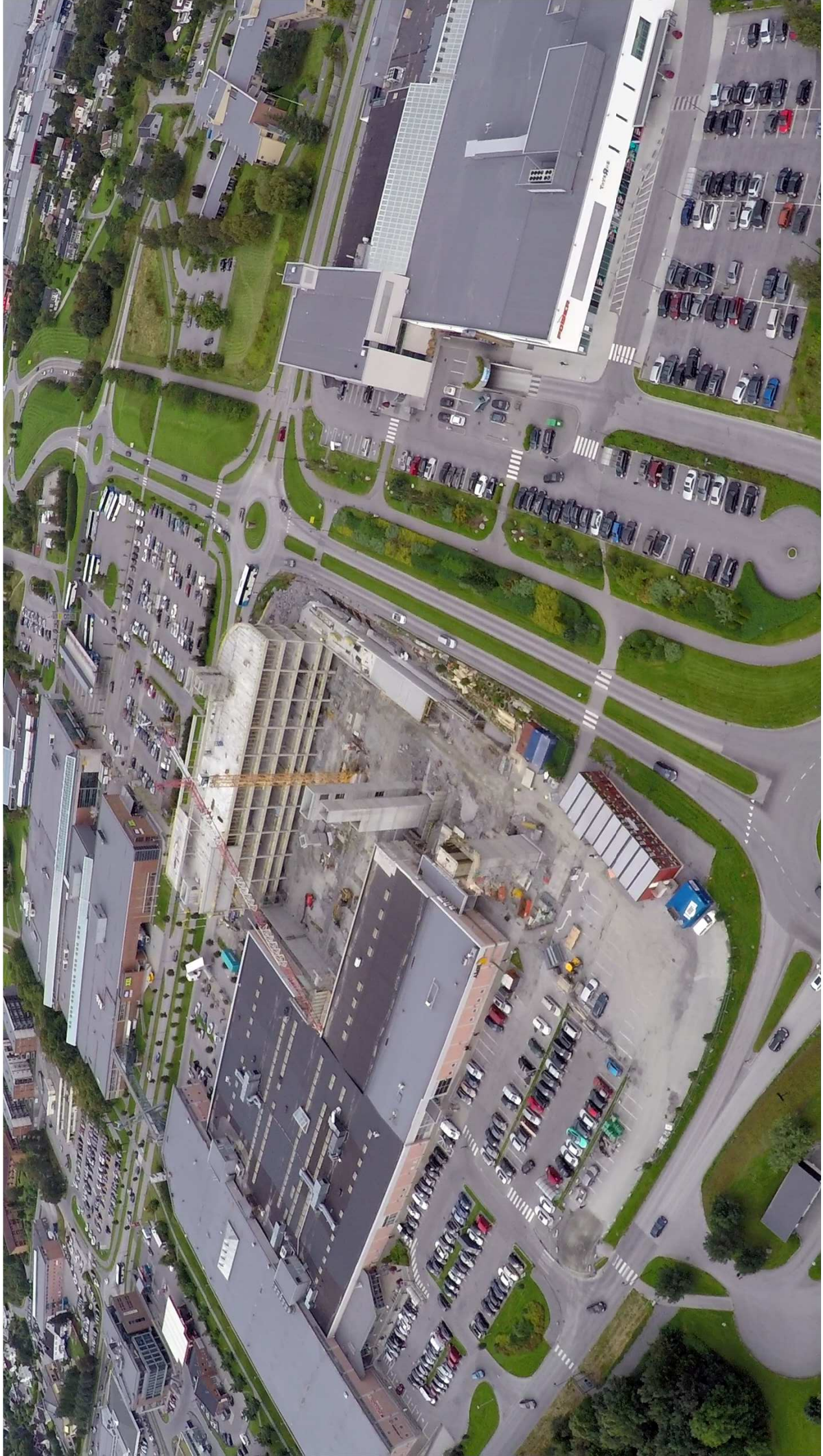
Water



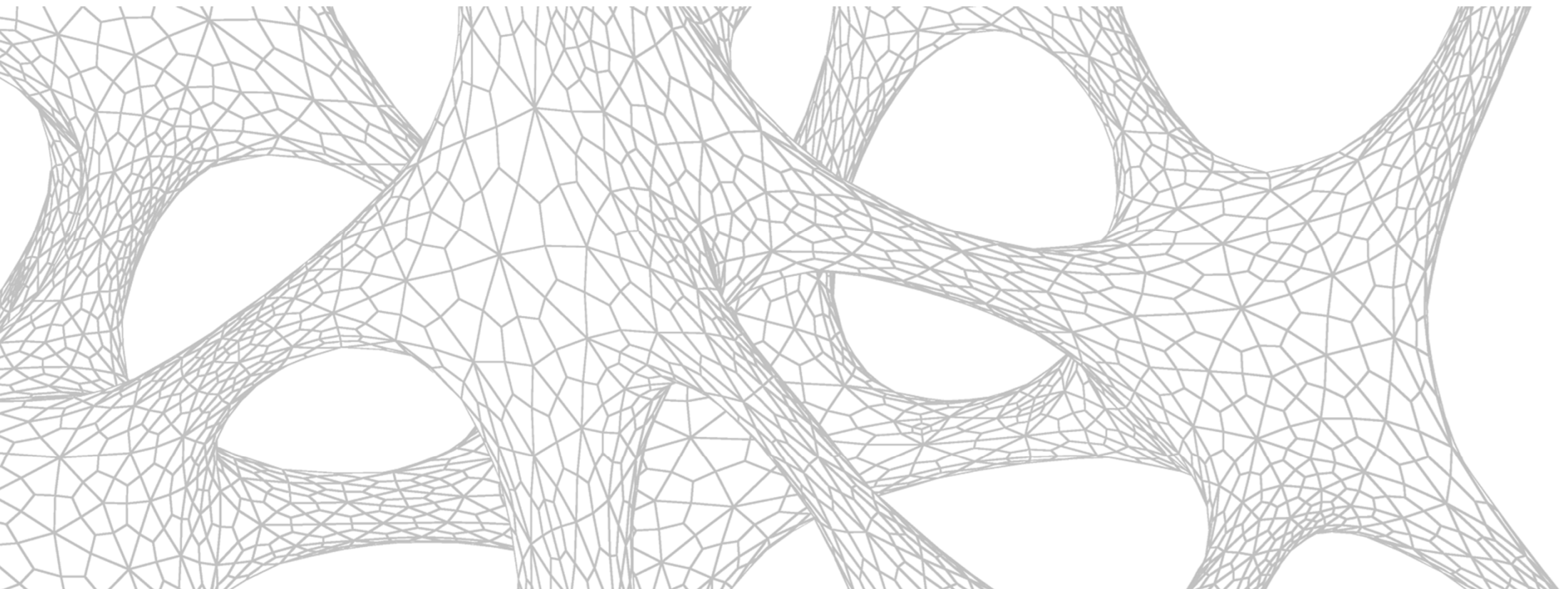
The project

- Expansion of existing shopping center with 36.000 m².
- Project started december 2016.
- Estimated to be finished in november 2018.
- Will be Norways biggest shopping center with a total of 130.000 m² after expansion is finished.







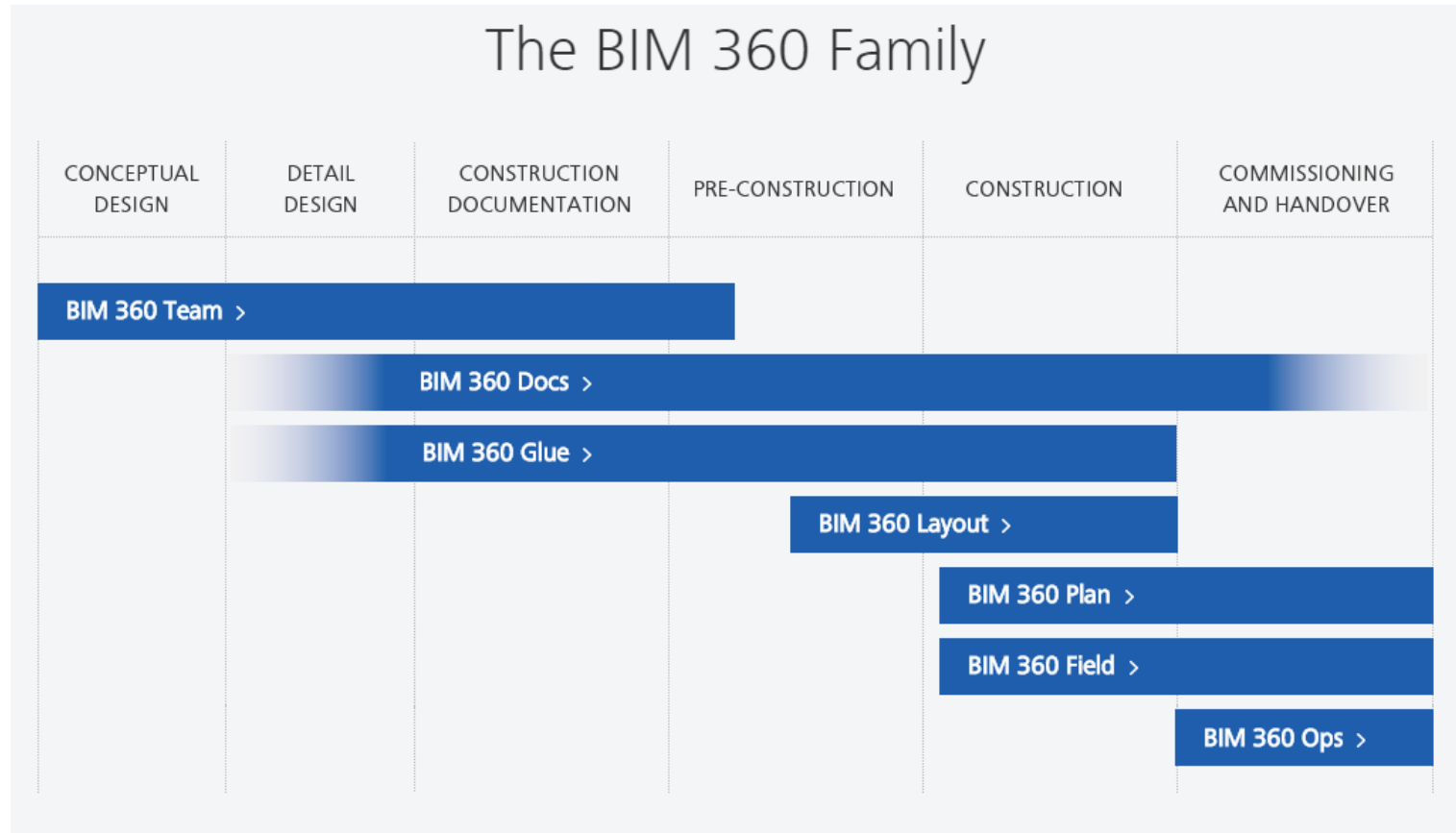


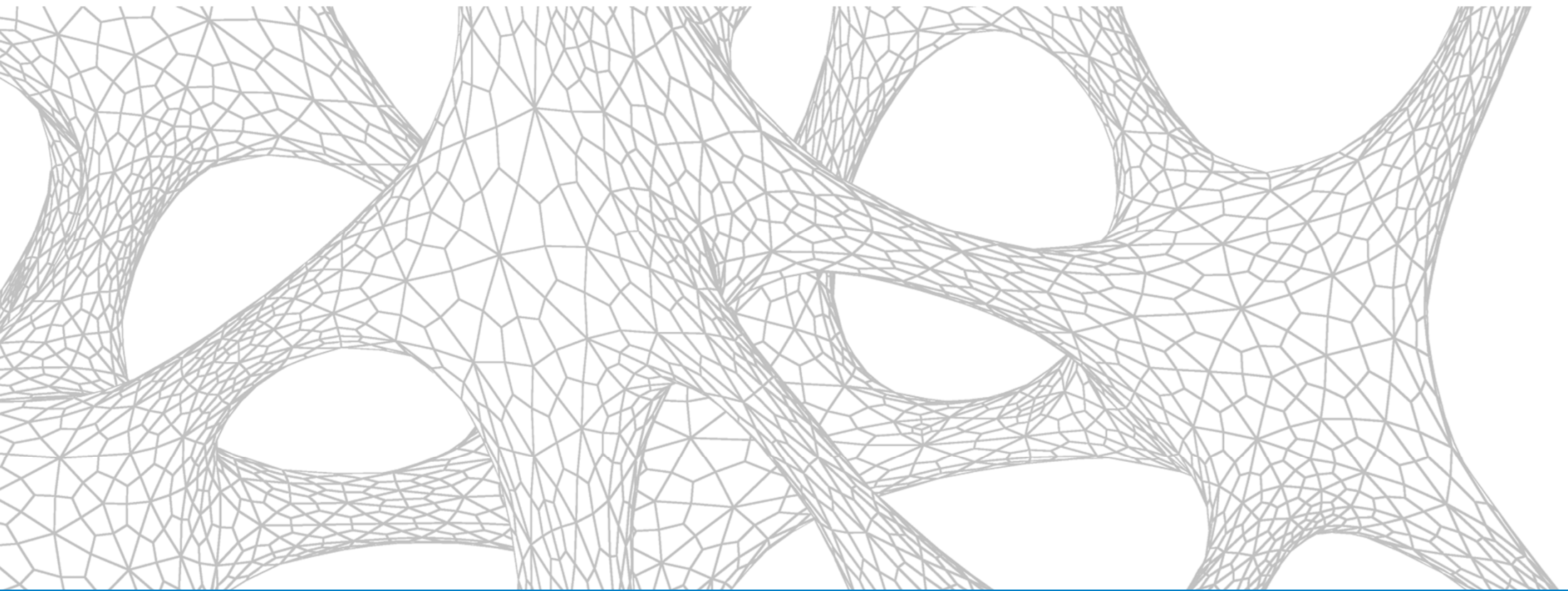
Overview

Collaboration for Revit (C4R)



BIM 360 Team, and the other family members....





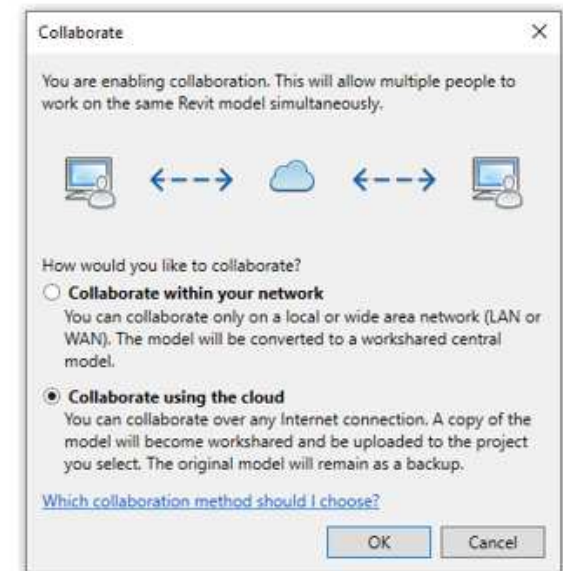
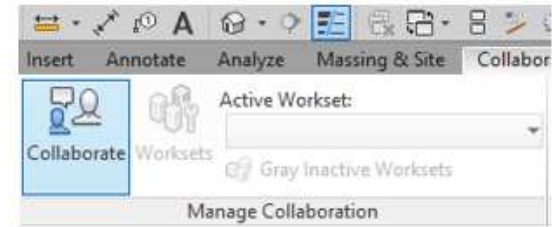
Project startup

How do I get C4R and BIM 360 Team?

- Subscribe to the C4R services from the Autodesk webpage.
- Assign the purchased contract to a BIM 360 Team HUB and invite users to it.
- Create a project on the Team HUB.
- Leave this to the Contract Managers or Software Coordinators!
- Now you are ready to roll!

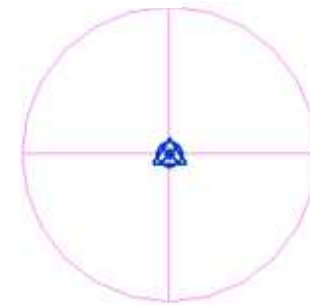
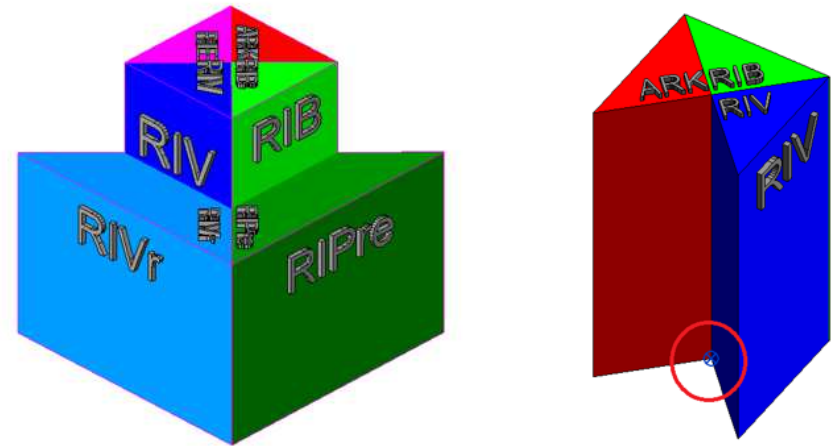
Starting a cloud based project

- Start a Revit project file as you always do.
- The difference is in the Worksharing tab.
- Save the project file to the Cloud.



Operation Zero-Point

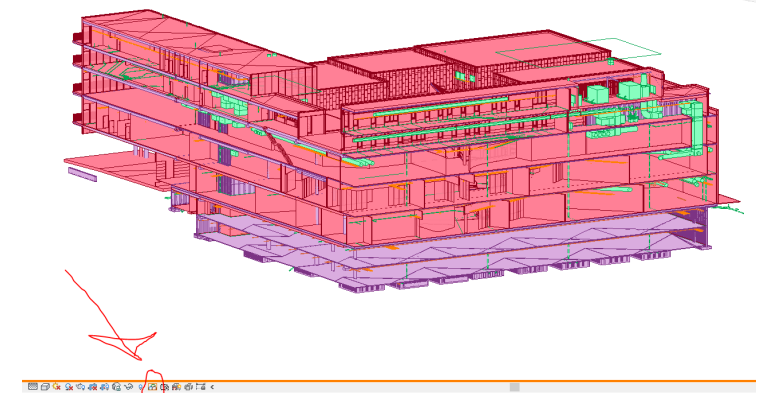
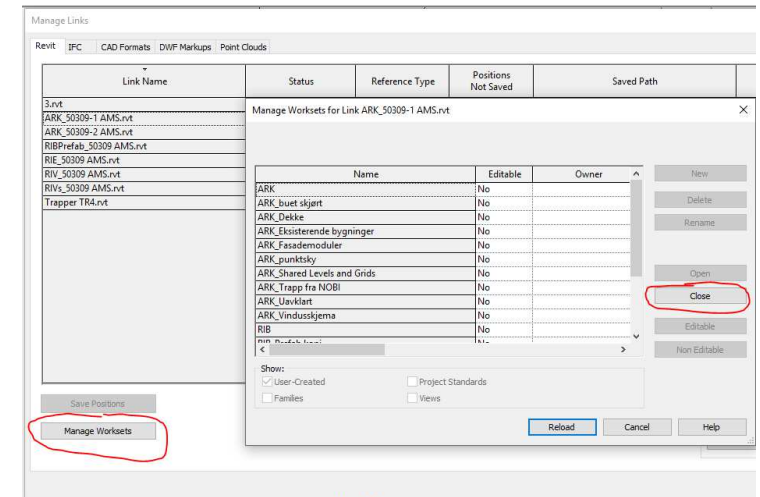
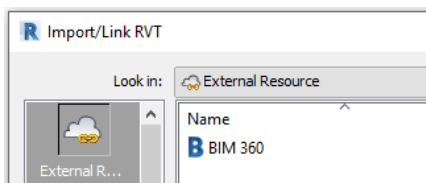
- Probably the most important thing you do in the project!
- Define location early!
- Why make it complicated when it can be made ridiculous easy?
- Use Origin to Origin when linking models together!



Zero point in Revit

Worksets

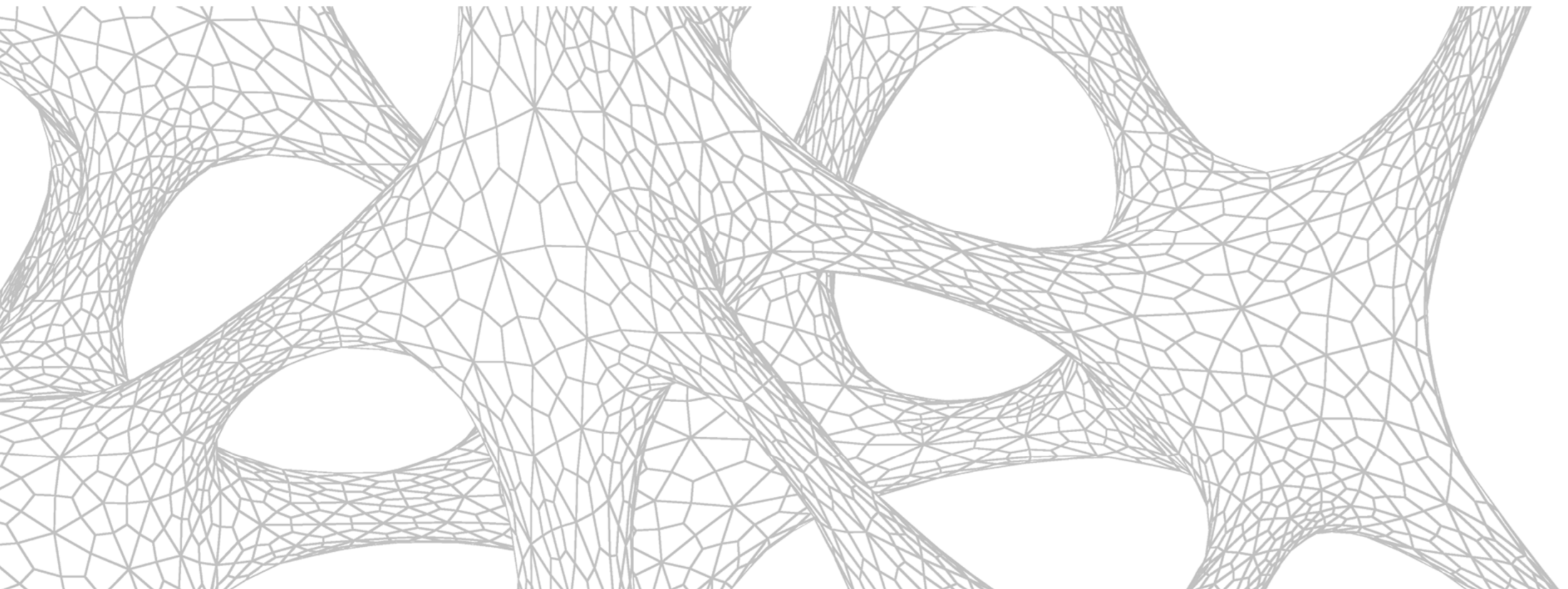
- Add each Revit link to a own workset.
- Simplifies controls of the linked files.
- Ability to not load worksets in linked files.
- Speeds up performance.
- Visualize different disciplines with worksharing display.



Multiple objects @ the same location – Maybe not?

- Define the ambitions of BIM in the project.
- The different disciplines control their own objects.
- The Architect removes ALL the structural objects after the Civil Engineer have take over the responsibility of the objects.
- Structural objects ONLY in the Engineers model.
- What about doors/windows in concrete walls?
- Cast in place and precast objects. How about the analytical lines?
- The details are always correct!

Live Demo



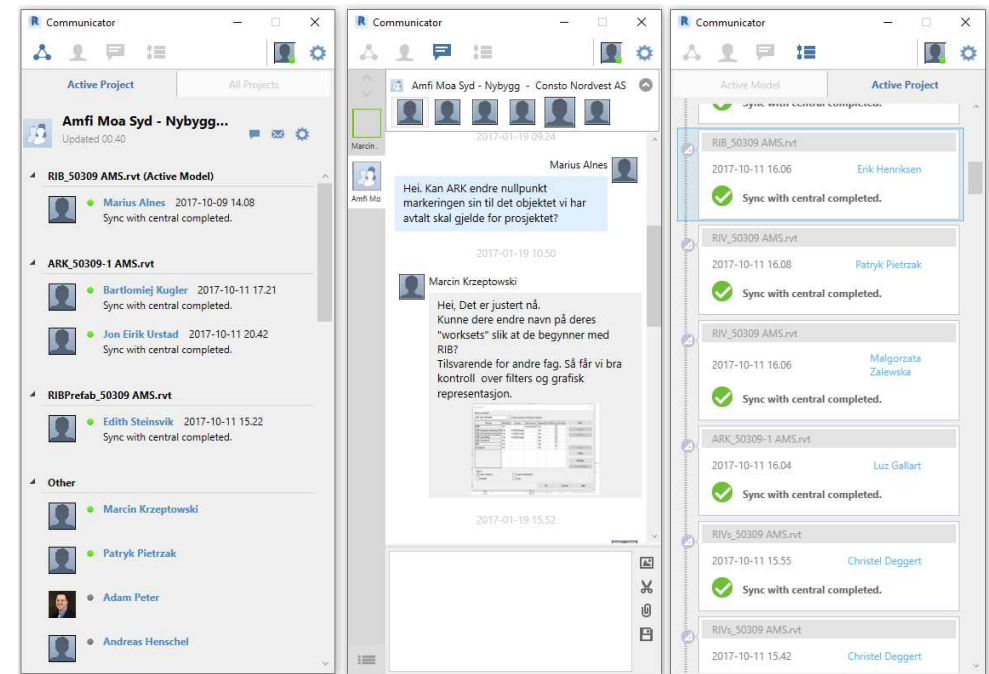
Drawing Live in Revit

Collaborating in the Cloud

- Everything is up to date. Always!
- No need for importing/exporting Revit models.
- Building the projects puzzles pieces together!
- Keep in mind that communication is essential.
- Make ruleset for how changes should be communicated.

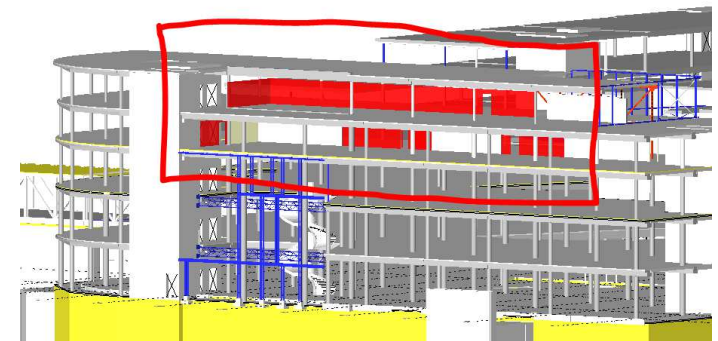
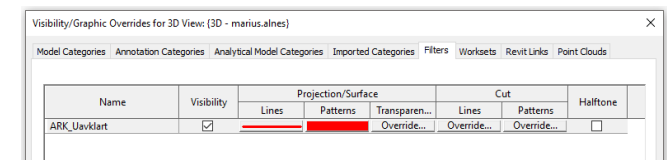
The communicator

- Communicate with project members through a chat function.
- Capture an area on the screen and send it to project members.
- Keep track on the updates on the different models, and see when the files are synchronized.

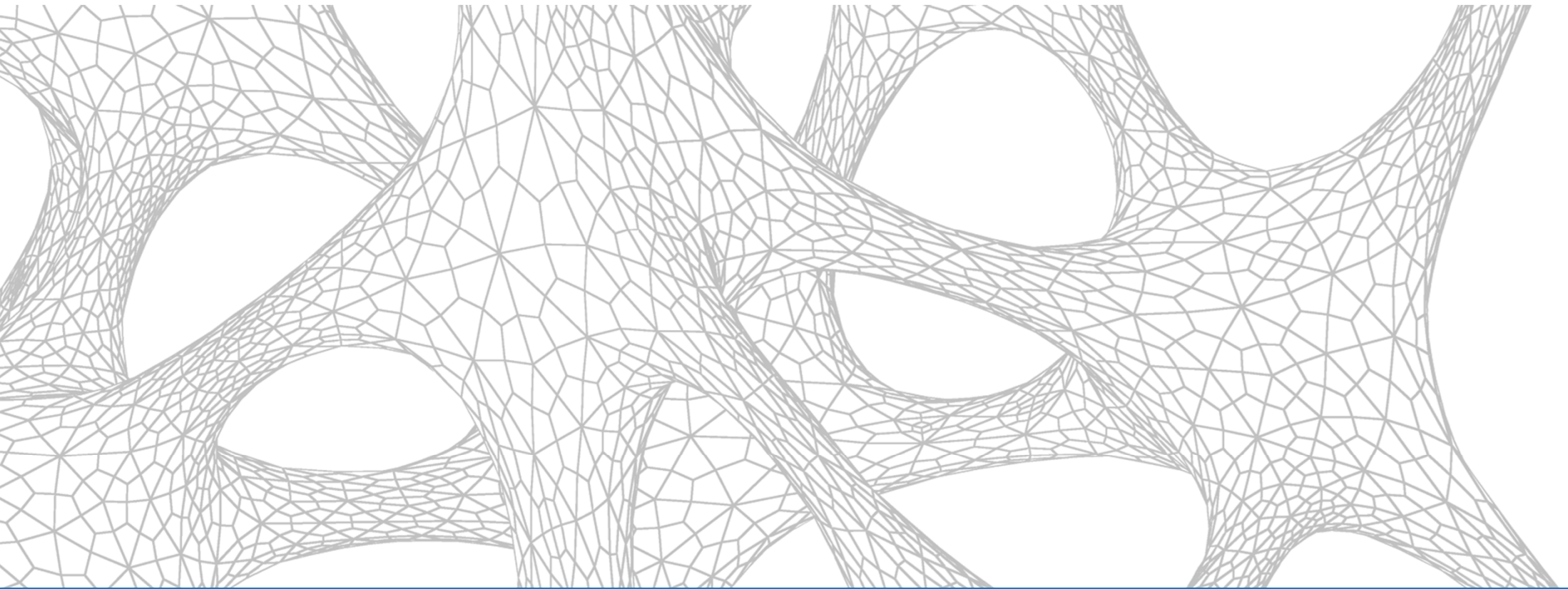


Highlight unfinished areas

- Something in your model that are made temporary or to show an alternative option?
- Show it to the other project members!
- Keep in mind that you are not the only one in the model.
- Add objects to a workset so other disciplines can apply colour filters to it.



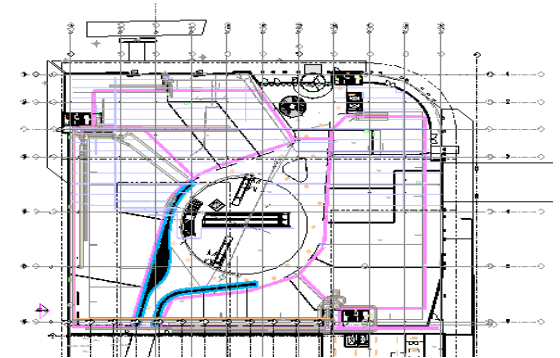
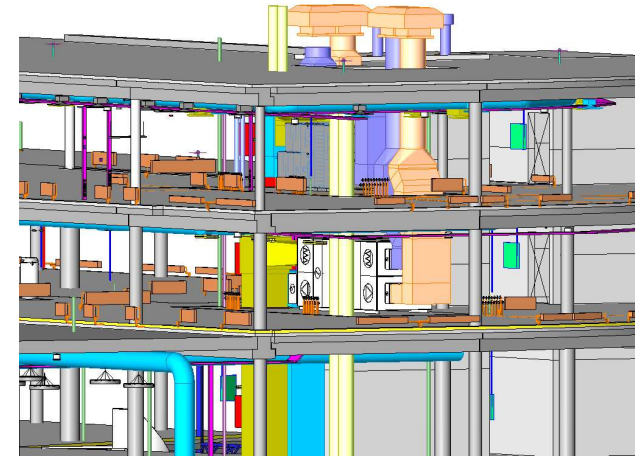
Live demo



Publish views/sheets to the cloud

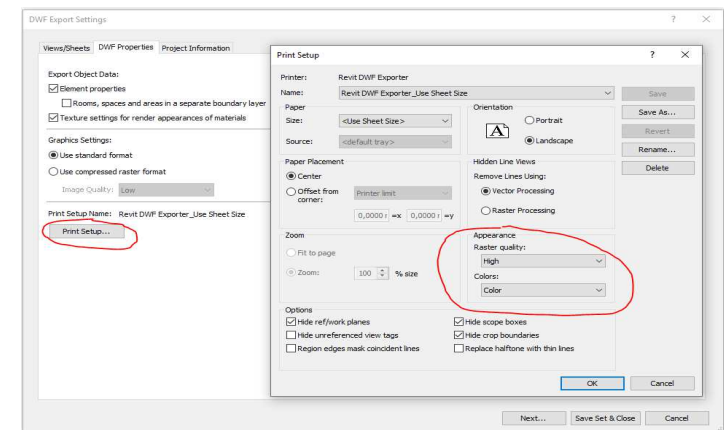
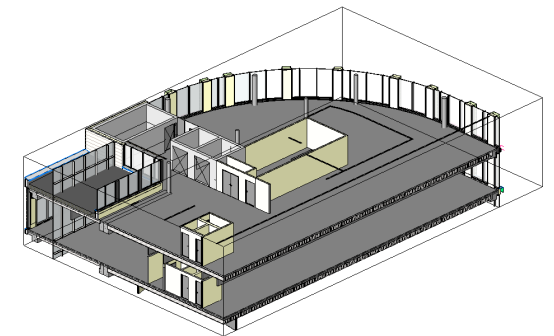
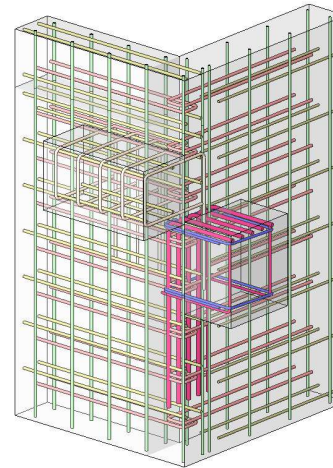
Setting up the views before publishing

- Make views which have different combinations of project disciplines.
- Structural elements and the technical disciplines to locate duct openings etc.
- Include 2D views to support the 3D views when commenting on the BIM 360 platform.
- Add view templates to the views when you have them just the way you want!



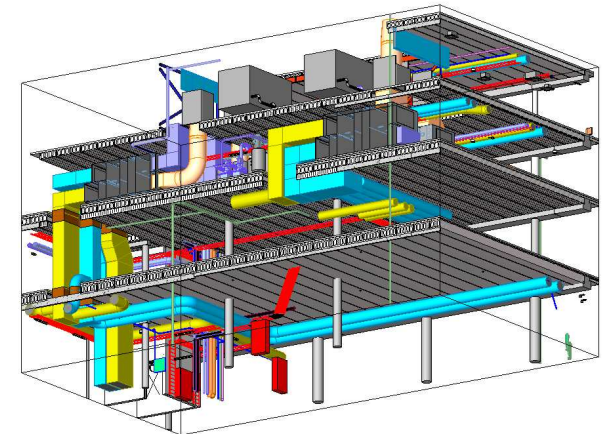
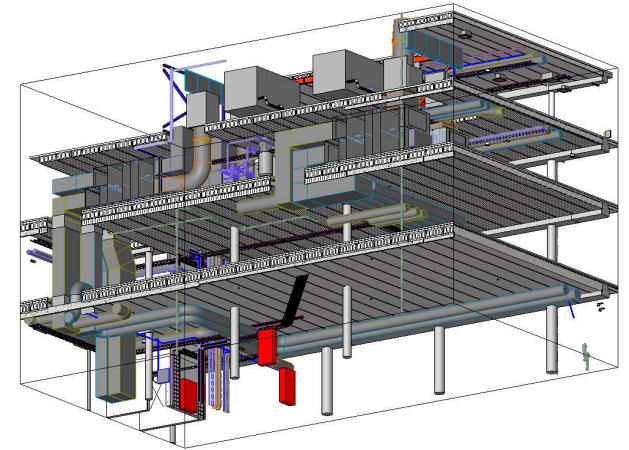
Setting up the views before publishing

- Use section box to crop views of complex details in 3D or to crop a specific area in the model you want to highlight.
- Remember to set the DWF export settings before publishing!
- Revit use these settings when publishing the views to the cloud.



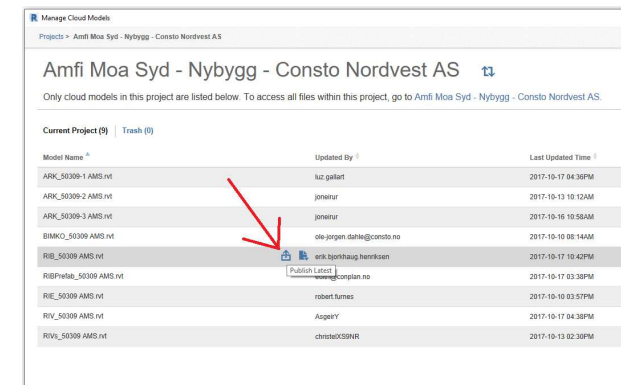
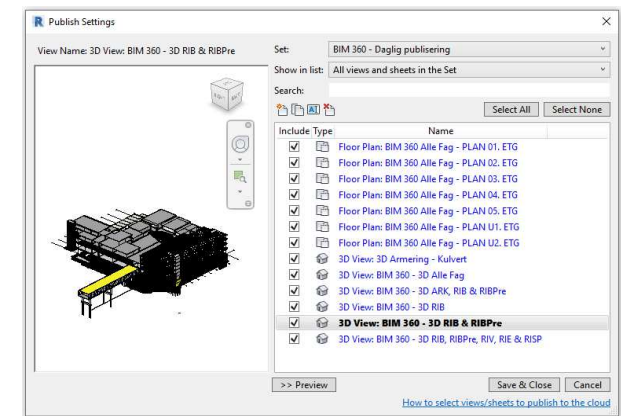
Setting up the views before publishing

- Put colours on the pipes and ducts!
- Use “By linked view” in the VG overrides in the linked file.
- Tell the technical engineers to set up views you can borrow.



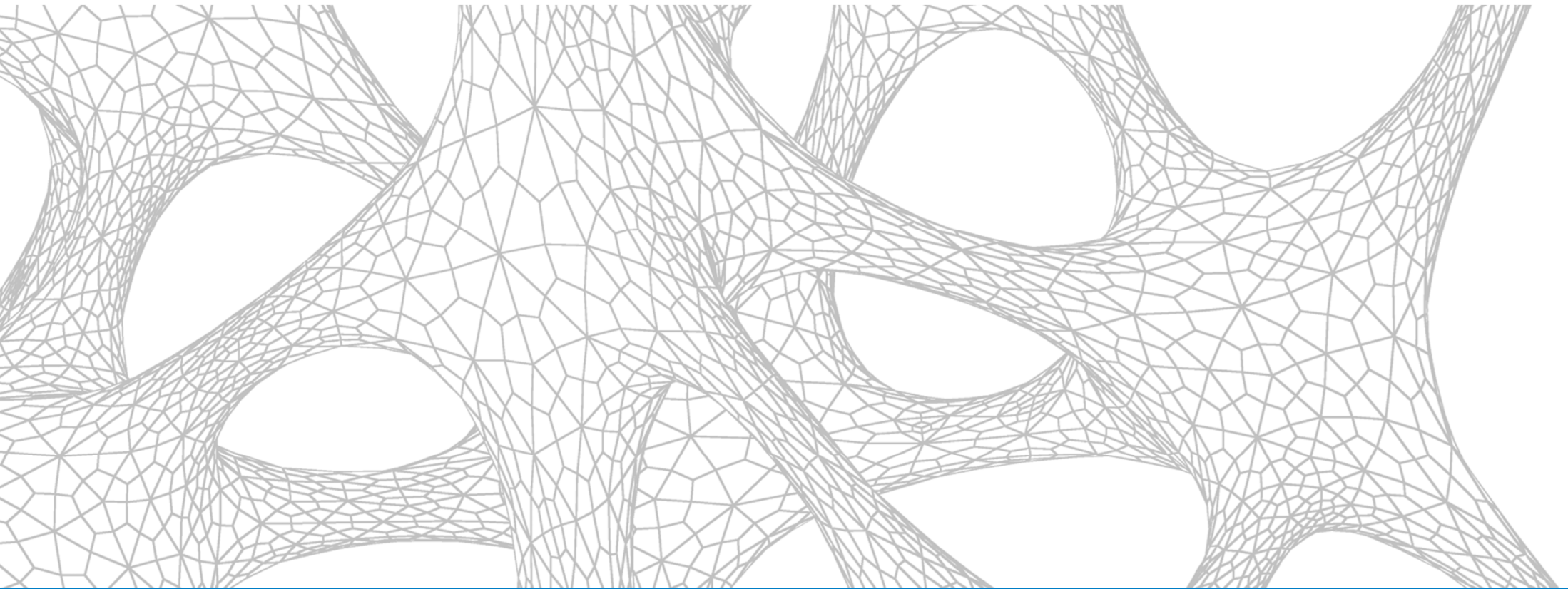
Publishing the views/sheets to the Cloud

- Set up the views and sheets you want to publish to the cloud.
- Save different sets to make it easier to publish next time.
- Remember to synchronize before publishing!
- By clicking one button you will publish the drawings.
- The best part is that the publishing process is running in the background! No waiting time!



Live demo

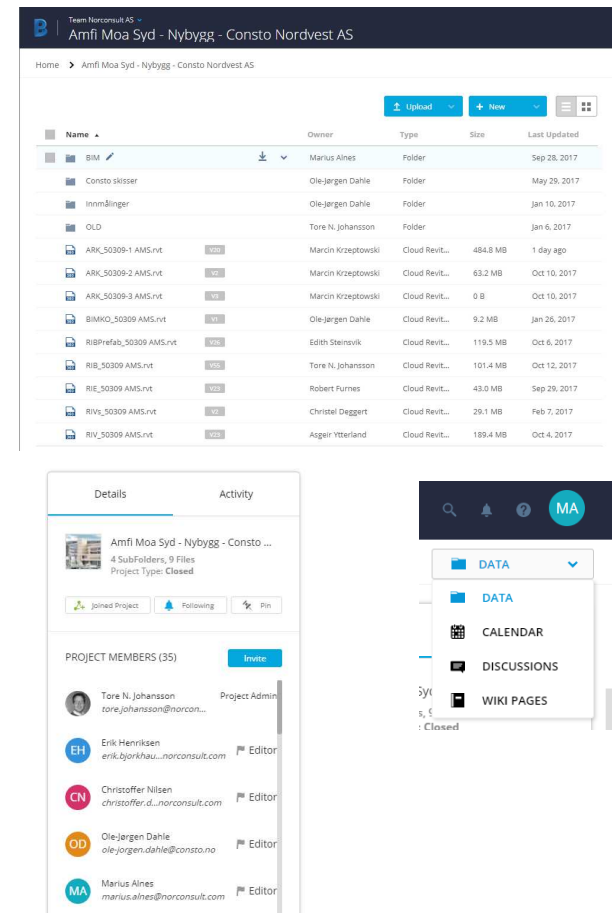
2 min stretch!



BIM 360 Team

The dashboard

- The Cloud Revit models are located at this area.
- When clicking on a Revit model file you will be able to view the last published views/sheets.
- It is NOT the last synchronized file you are opening!
- Keep track of when the models have been published the last time.
- Add folders and upload any type of files.
- Calendar, Discussions and Wiki Pages.
- Overview of project members.



Forge Viewer

- Great viewer! Graphics are awesome!
- Made very easy. Everyone can use it.
- Can open multiple 2D and 3D file formats.
- Click on the Cloud Revit files to view published views/sheets.
- Highlight objects categories or objects in the model.



2D and 3D design file types

These file types can be viewed with Autodesk Viewer, the free version of A360, and the paid version, A360 Team.

3DM	GLB	SAT
3DS	GLTF	SESSION
ASM	IAM	SKP
CATPART	IDW	SLDASM
CATPRODUCT	IFC	SLDPRT
CGR	IGR	SMB
COLLABORATION	IGES	SMT
DAE	IGS	STE
DGN	IPT	STEP
DLVS	IWM	STL
DWF	IT	STLA
DWFX	MAX	STLB
DWG *	MODEL	STP
DWT	NEU	STP2
DXF	NWC	WIRE
EMODEL	NWD	X_B
EPD	OBJ	X_T
F3D	PRT	XAS
FBX	PSMODEL	XPR
G	RVT **	
GEXML	SAB	



Forge Viewer

- Have multiple tools to explore and analyse the models.
- Basic tools such as orbit, pan, zoom, etc.
- First person (new first person). Great to get a realistic view of the design.
- Markups. This is the BIM 360 Team tool.
- Section analysis. Same as in many other viewers, but still a little different.
- Print button to collect snapshots from the model.
- Properties. See object information.



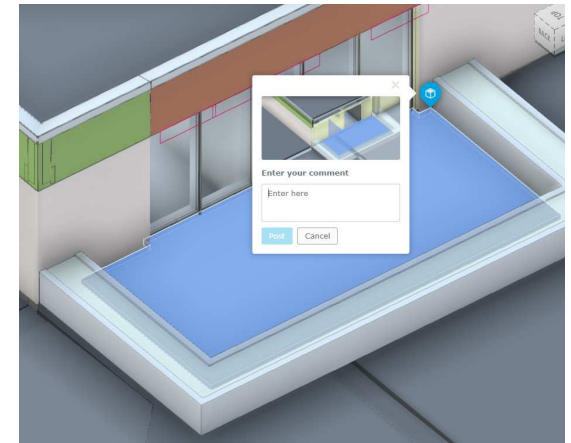
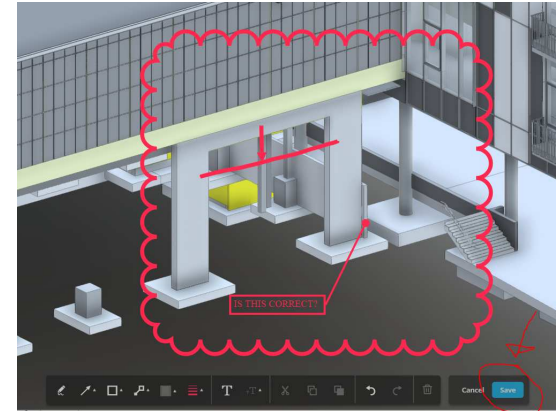
Live demo

Using BIM 360 Team

- Collaborating and communication using the cloud.
- Unites all team members on the same platform.
- Closer communication between the designers and the contractors.
- Accessible from anywhere using a web browser or mobile device.
- Make faster decision with all the stakeholders connected.

Using BIM 360 Team Markup and comment tool

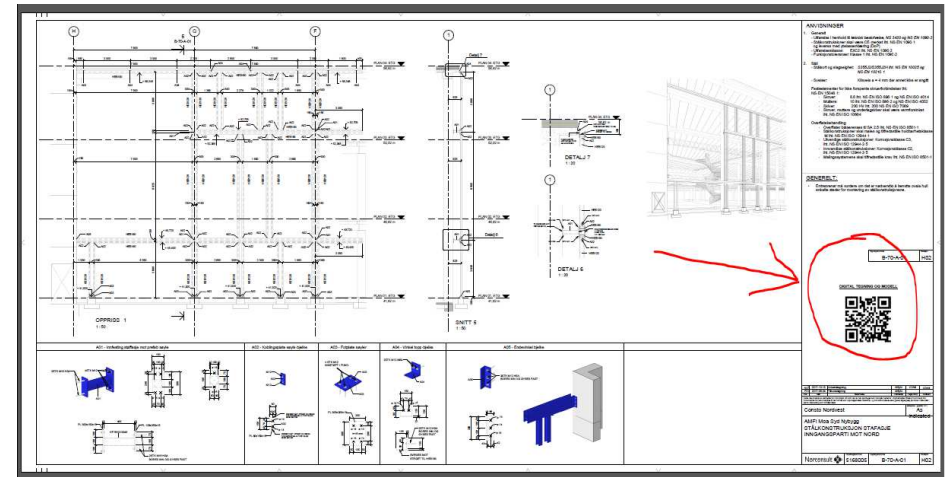
- 3 ways to communicate in the forge viewer.
- Use the markup tool to draw symbols and add text to a still image from the model. Great to show a different solution etc.
- Add comments to a point or object.
- Add a general comment using the comment field in the viewer.



Live demo

QR codes

- QR codes are awesome!
- All you need is a web address and a QR code generator.
- Drawings are made from 3D models. Make the models accessible in the cloud.
- Put QR codes on sheets to connect the 2D drawing and 3D model.



QR-Code – Try it!



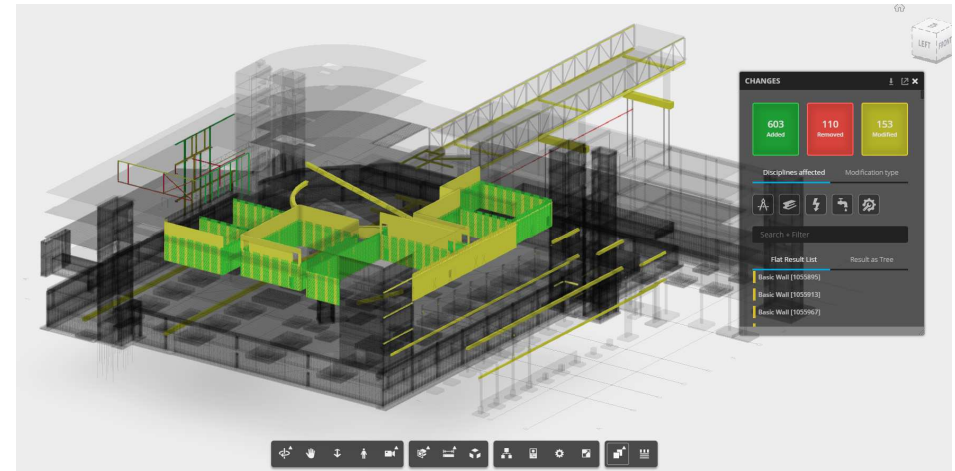
Live Review

- Set up a live session of the model with anyone.
- We browser is all you need. No software installation.
- Anyone of the invited members can control the model.
- Faster decision making.
- Discuss a problem on the building site from your office!

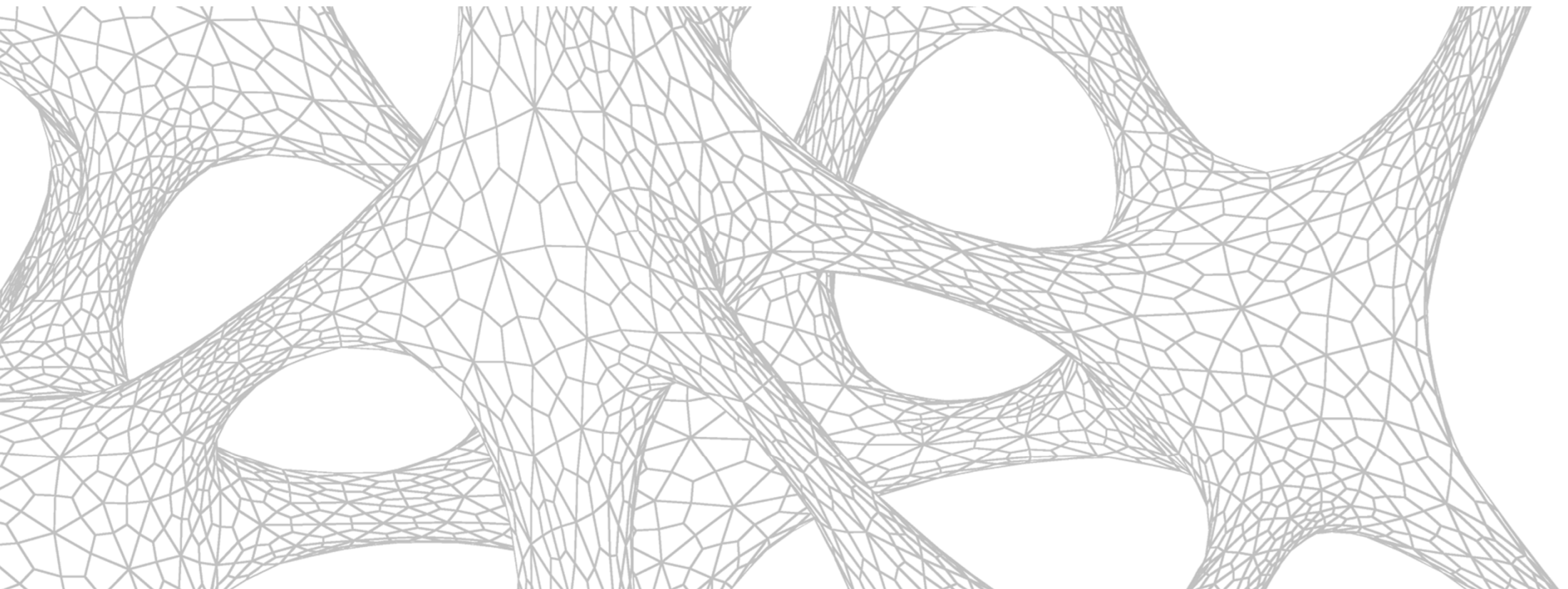
Live demo

Compare versions

- Compare different model versions.
- Highlight added, removed and modified elements.
- Keep track on the changes in the models.
- Great tool for contractors and building owners.



Live demo



Final thoughts

Final thoughts about the future

- Do we need the 2D detailing?
- Paperless projects. Are we there yet?
- VR on the building site?



Questions?

Office Hours

- Other questions?
- This classroom, Delfino 4004, from 5:30pm to 6:30pm today!
- I'll be waiting.

Session feedback

- Your feedback is important. Fill out the class survey
- Use the AU mobile app or fill out a class survey online.
- Give feedback after each session.



Strongly agree ☐

Agree ☒

Disagree ☐

Strongly disagree ☐



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