

BES473681

# Break Down the Barriers between Design and Construction with BIM 360

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## Learning Objectives

- Create a detailed model with steel connections in Revit
- Create fabrication and construction documents with Advance Steel
- Publish 3D models and 2D documentation to BIM 360
- Use BIM 360 to communicate and track changes in models and drawings

## Description

This class will demonstrate a complete project collaboration workflow for structural steel, starting with Revit and pulling it all together in BIM 360 for reviews, issue management, coordination, and model sharing. We'll start by creating a detailed model with Revit, import it into Advance Steel, and use dedicated tools in Advance Steel to create all deliverables for fabrication and erection on-site. We'll then publish, share, and review the detailed models and associated documentation via BIM 360.

## Speakers



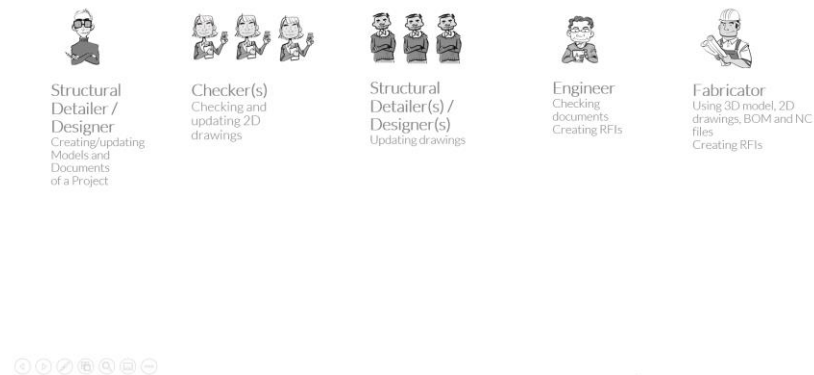
Philippe Bonneau is the Technical Marketing Manager for Advance Steel software at Autodesk. Prior to joining Autodesk, Philippe spent 20 years filling various roles in the structural industry, including working in steel engineering & detailing companies and then acting as product manager for Advance Steel at a Platinum Autodesk partner. Philippe attended the University du Maine in Le Mans, France. He is based in Paris, France.



Gernot Jeromin is the product manager for structural steel at Autodesk. Structural steel includes Advance Steel and the structural steel part in Revit. Before joining Autodesk in 2018, Gernot has worked in different positions for multiple companies in Europe and the US, not only for structural steel with a total experience of over 10 years as a product manager, but also for plant, AEC, digital twins or visualization. He is based in Germany.

## Structural Steel Workflows (example)

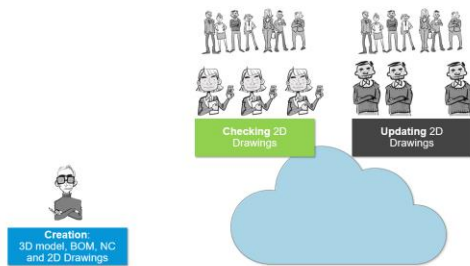
### Persona



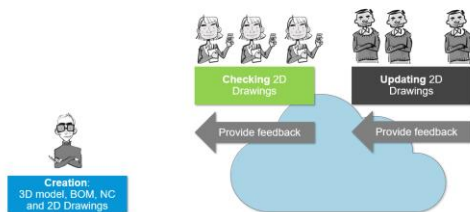
Usually we are talking about persona focusing on specific tasks during a project. Sometimes there is only one person taking care about everything, sometimes the project will be managed involving different firms even on different continents. But the workflow in general is looking similar in each case. The starting point of the project could be at the engineer, maybe using Revit.



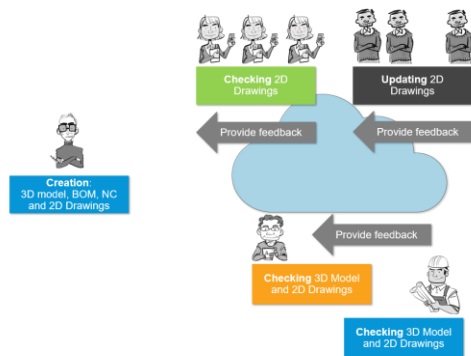
But to keep it simple we say we start at the structural detailer or designer, maybe using Advance Steel. This individual will create the 3D model, and from this model different documents will be created, like 2D drawings, the bill of material or at a later stage NC files for fabrication. All those files will be uploaded to the cloud. This will grant access for all the other team members to work on the project.



Next step would be to have a look at the 2D drawings. Checkers will just have a look at the drawings, creating remarks and such, but not modifying them. Structural detailers or designers are actually modifying the 2D drawings. Please keep in mind: checking and updating the 2D drawings can be done in the same office where they have been created, or it can be done anywhere on the globe, by multiple individuals at the same time.



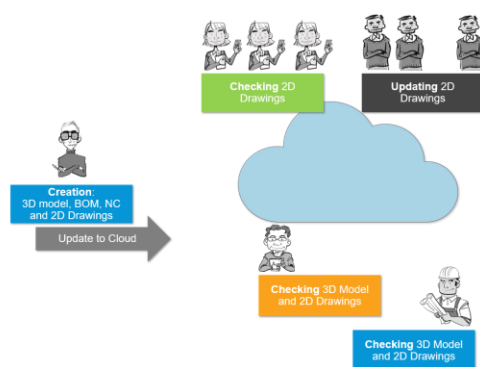
After checking and updating the 2D drawings, all information will be sent back to the designer or detailer who created all files in the beginning. Either the modifications will be synced back to the 3D model, or the 3D model needs to be updated according to the feedback received.



And then there are structural engineers and fabricators.

The engineer will have a look at the 3D model and the 2D drawings, creating RFI's – request for information, providing feedback on the connections, or he is even using the 3D model to do his magic, maybe using Robot, and send an updated model back to the beginning, where everything will be answered, updated and synced back to the cloud to make sure everything is up-to-date.

The fabricator will create RFI's and is providing feedback as well, maybe he would like to get something done differently because of how he is doing something different when it comes to fabrication, which will lead to an updated project as in the other cases.

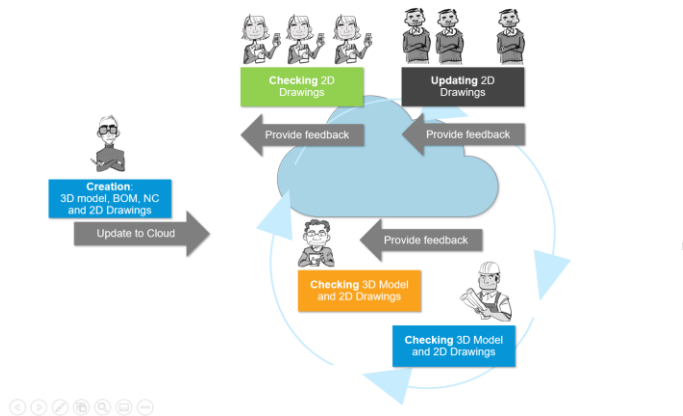


Well, now we have a group of individuals working on the project, ...

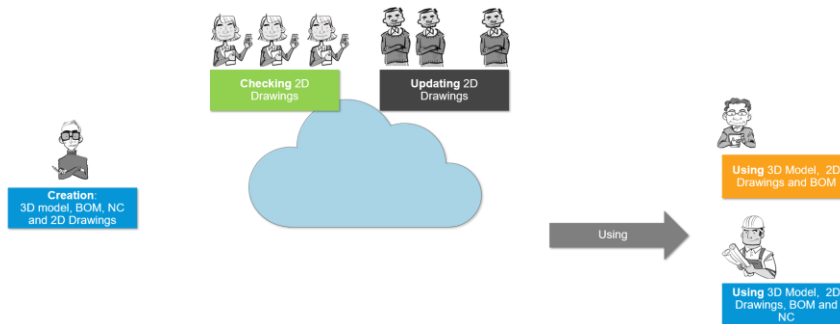
Again, it doesn't matter who will do which task first:

- Starting at the engineer or at the designer or detailer
- Embedding feedback from the engineer or fabricator before the detailers will clean up the 2D drawings
- Even creating material take offs before the 2D drawings have been created

Tasks may shift, the general idea will look similar.



It comes down to the point that everyone is working on the model and drawings, providing feedback, requesting information or is updating the 3D model or the 2D drawings. This will somehow run in circles until the project can be delivered. Keeping the project files in the cloud will ensure that everyone has access to the latest documents, and no one will overwrite what others have done in the meantime.



At the end, the structural engineer can use the 3D model, the 2D drawings and he can create material take-offs. The fabricator can use the 2D drawings, the bill of material and the NC files for fabrication, always having access to the 3D model as well.

Again, if you work in just one office, or in multiple of if offshore detailers are involved comes all down to the point, that all persona need to work together on the project.

Keeping the project files in the cloud will enable an easy collaboration and will reduce some possibilities for potential mistakes.

This will also open up for a lot of additional possibilities, like managing access rights, delivering only selected documents and drawings to other stakeholders, comparing different versions of models and 2D drawings, and much more!



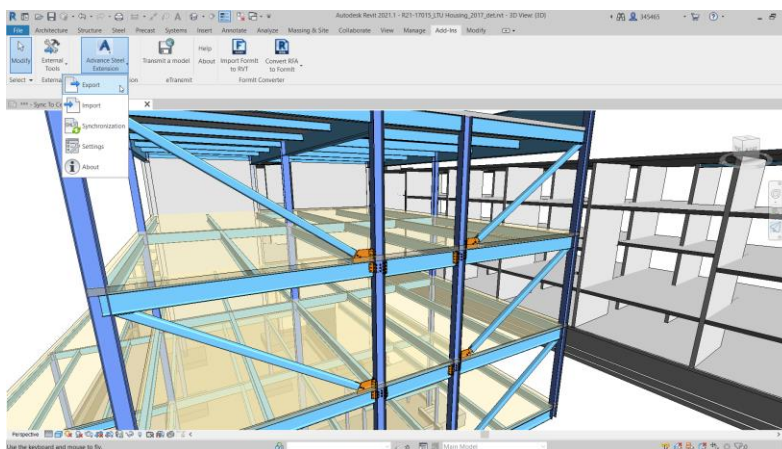


## Create Fabrication & Construction Documents with Advance Steel

Structural engineers can use a bidirectional link between Advance Steel detailing software and Revit to collaborate on the same 3D model, saving time and minimizing errors.

### From Steel Design to Detailing

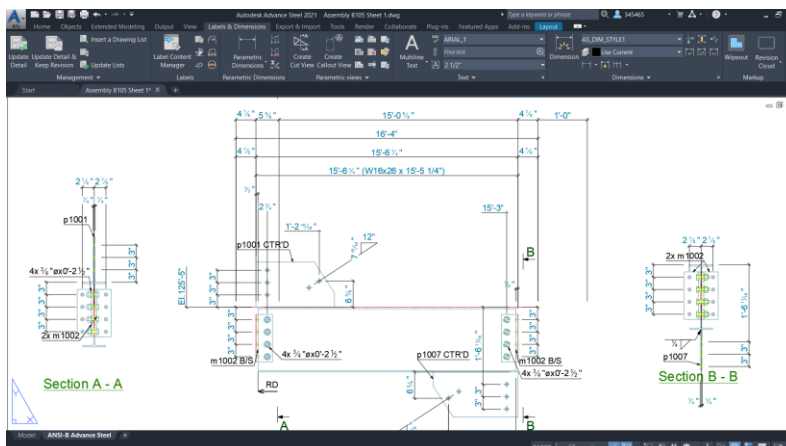
The Advance Steel Extension for Revit (available in your Autodesk Account) enables you to import not only the structural members but also the steel connections into Advance Steel.



### Accurate Shop Drawings & NC Data for CNC Machinery

Steel detailers and/or steel fabricators need to create documents that provide information necessary for shop personnel to fabricate & assembly the steel components.

Advance Steel users can leverage ready-to-use templates available out-of-the-box to automatically create shop drawings (both single part and assembly drawings).

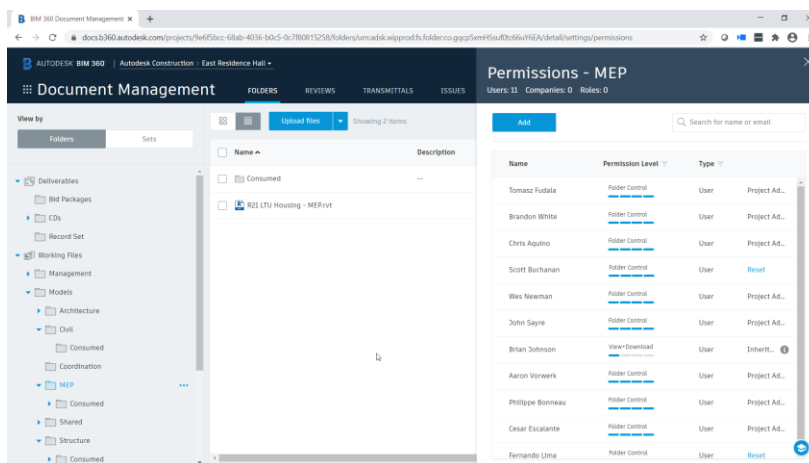


## Publish 3D Models and 2D Documentation to BIM 360

BIM 360 is a cloud-based BIM management and collaboration solution that connects the entire project team and helps streamline BIM project review and coordination workflows.

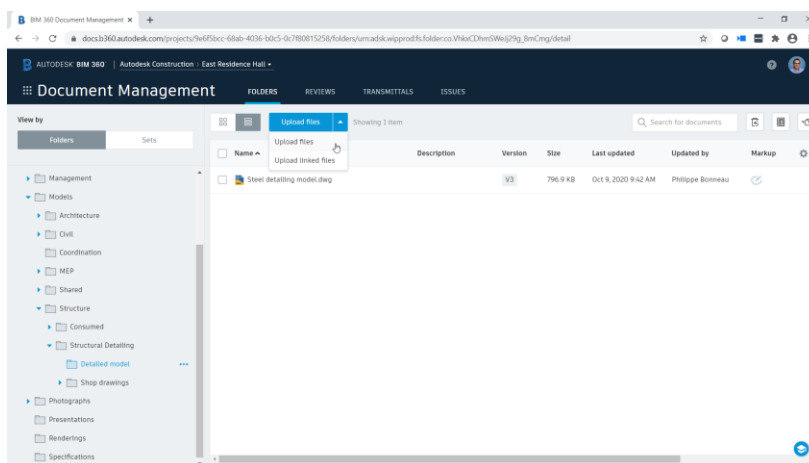
### BIM 360 Docs

BIM 360 Docs lets you publish, manage, review and approve all construction project documentation, plans and models. You can give access to the right information to the right people with permissioning.



### Publish 3D Models

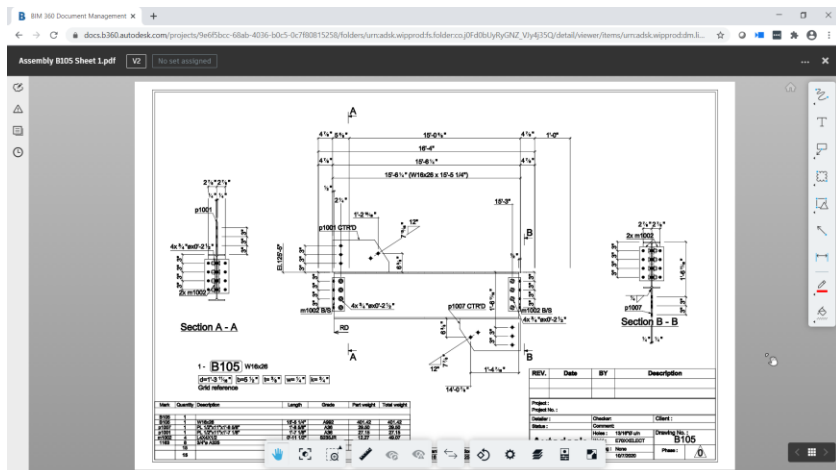
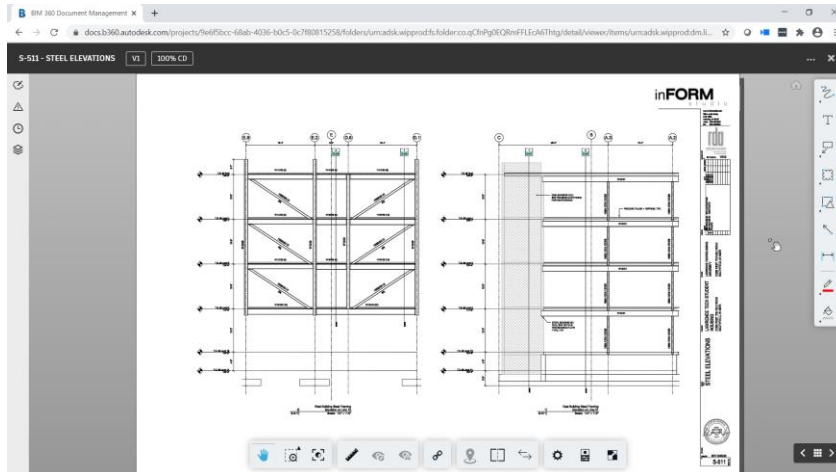
In the Folder tree, select the folder you want to upload files to. Then click on the Upload files drop-down menu and select Upload file. You can also drag and drop a file from your computer into the BIM 360 folder.





## Publish 2D Documentation

You can upload and publish drawing and design files (including PDFs, IFCs, DWFs, linked Revit files and DWGs with xrefs).

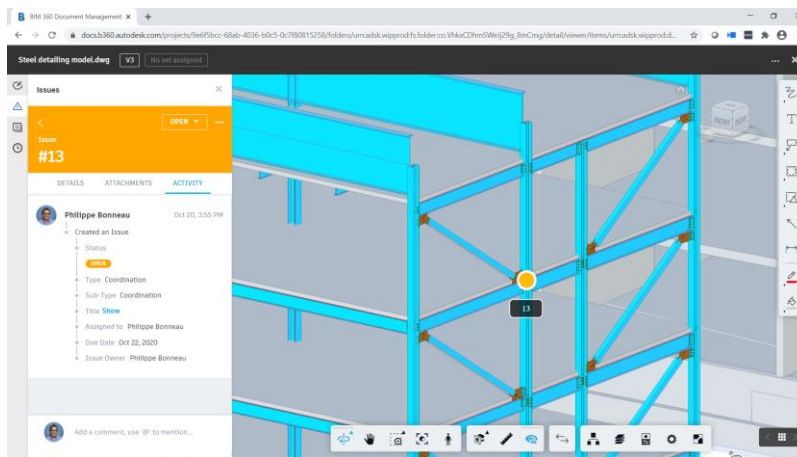


## Use BIM 360 to Communicate and Track Changes in Models and Drawings

You can use BIM 360 to track versions, view changes, and compare files to see the impact of changes and raise issues to address problems.

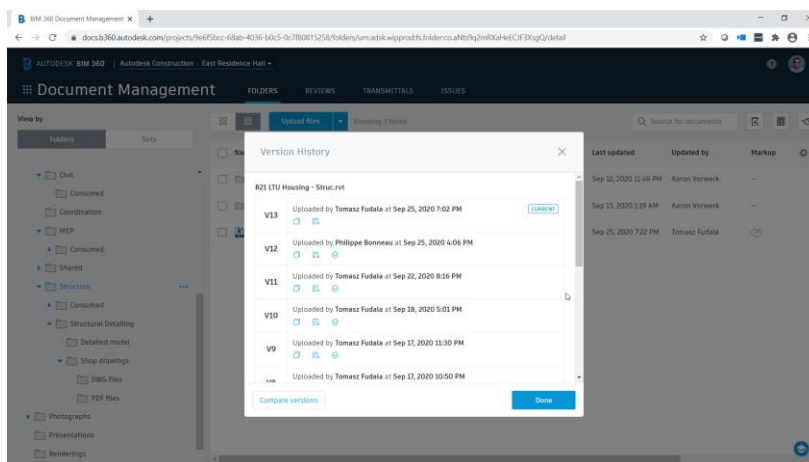
### Design Issues in BIM 360

BIM 360 helps you facilitate, control, and automate the review and distribution of project drawings, models, and other documents, including tools for reviewing, commenting on and approving documents.



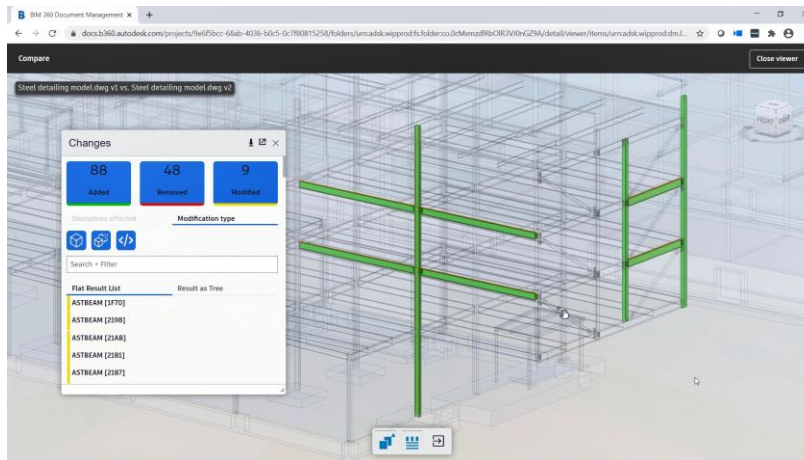
### File Versioning

BIM 360 Docs keeps track of file versions, which means that when a newer version of a file is uploaded, BIM 360 Docs simply adds the file to the project and updates its version "tag" (V2, V3, V4 etc).



## Compare Changes in 3D Models

The Compare tool allows members to compare versions of the same model to visually inspect changes over the history of that design.

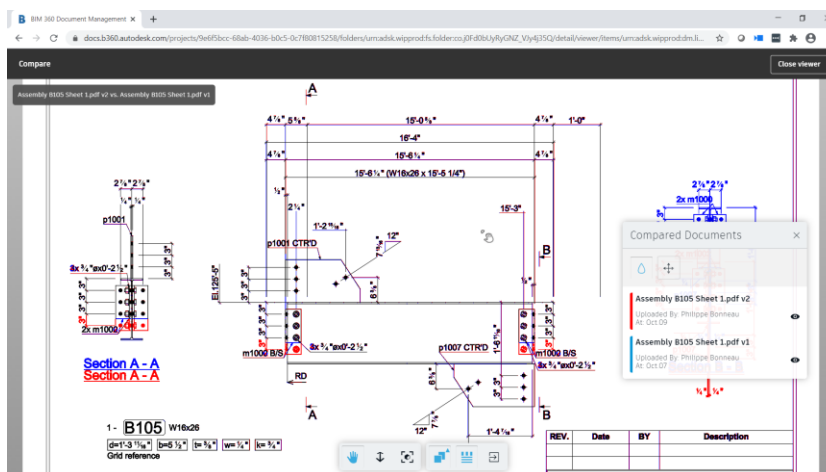


When comparing two versions of a 3D model, you can identify object-level information about what has been added (green), removed (red), or modified (yellow) between the two versions.

## Compare Changes in 2D Shop Drawings

The Compare tool works the same with 2D documents as it does with 3D models. It is available for these file types: PDF, RVT, DWG, DWF. It also works for the native DWG file of your Advance Steel shop drawings and/or general arrangement drawings.

There are two view modes for comparisons: overlay (by default) and side-by-side.



## Conclusion

Utilizing BIM 360 for structural steel design to construction workflows can help you to:

- Connect structural teams, no matter their location
- Improve communication with model-based collaboration tools
- Access and view all 3D designs and 2D documentation in a single cloud-based platform
- Get the most up-to-date information at your fingertips
- Resolve design issues during preconstruction