

# PLAN IT RIGHT BEFORE YOU BUILD ONSITE

The Five Top Workflows  
for Navisworks





Today’s construction professionals rely on Navisworks to provide industry-leading clash detection throughout the construction process.

With over tens of thousands of users, Navisworks allows construction teams to accurately coordinate models from various disciplines and identify and resolve clashes before construction begins in order to better control project outcomes. And with more than 60 file formats supported, it is the industry’s most effective coordination engine, allowing teams to coordinate across multiple trades and deliver more seamless projects.

But clash detection is just one of Navisworks’ core functionalities. Within the software, there are five key workflows that help construction teams lay the foundation for project success.



**INTERESTED?**

Click on the relevant section on the right-hand side to explore further.

- 1. CLASH DETECTION ..... 3
- 2. MODEL AGGREGATION ..... 5
- 3. SIMULATION AND ANIMATION ..... 7
- 4. ANALYZING WITH QUANTIFICATION ..... 9
- 5. BIM 360 INTEGRATION..... 11
- GET MORE FROM NAVISWORKS ..... 13

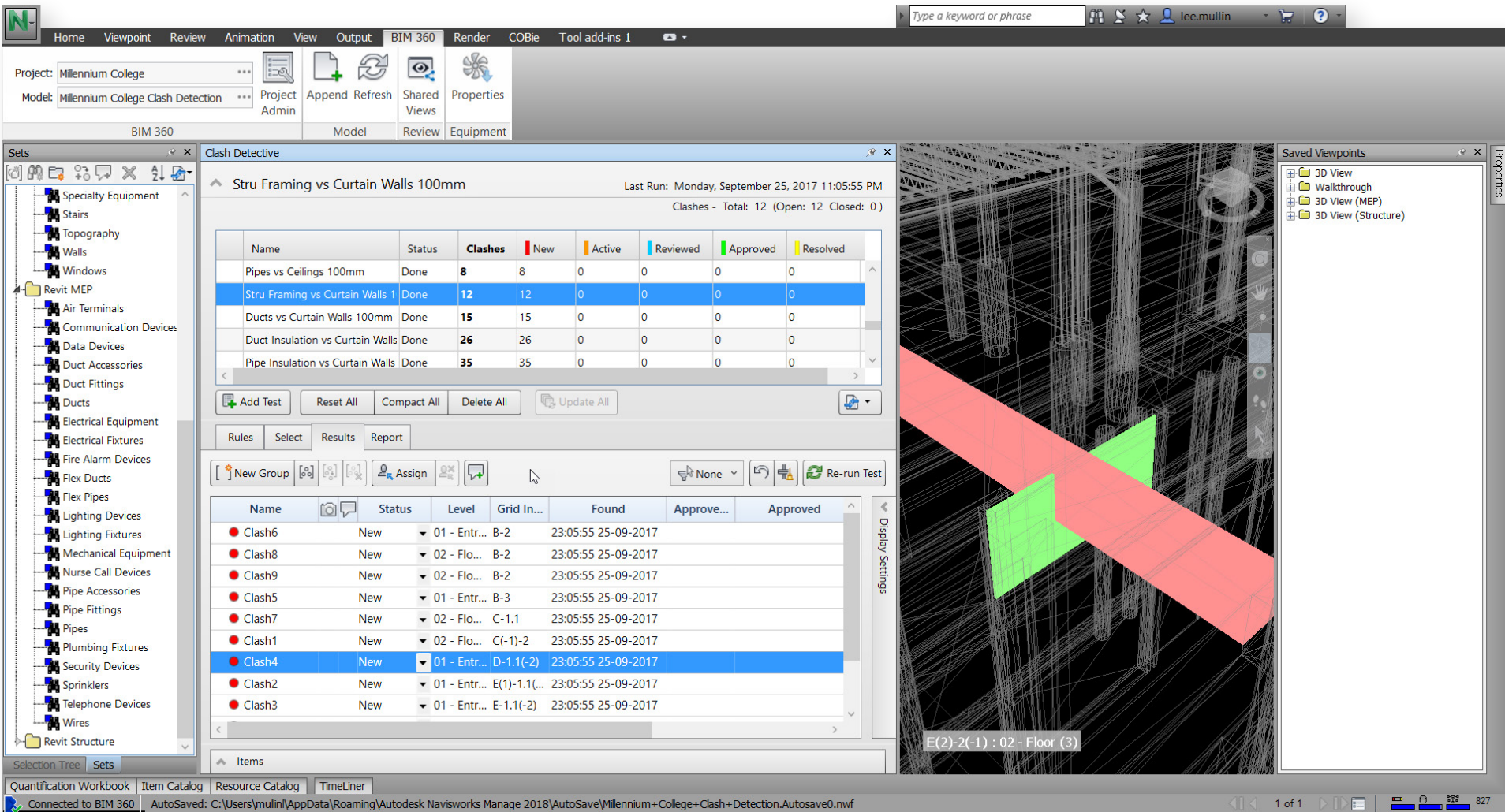
# 1. Clash Detection

Ensure another level of project security with the ability to construct your project digitally so you can identify and resolve potential problems before you build on site.

When unforeseen clashes appear, carefully-planned schedules and budgets can quickly end up discarded.

With the Clash Detective tool in Navisworks, you can effectively identify, inspect, and report interferences (clashes) in a 3D project model, so you can avoid nasty surprises onsite and deliver your project smoothly.

You can also reduce the risk of human error during model inspections with Clash Detective by adding an easy framework to work through clashes from identification to resolution. And once your design work is completed, Clash Detective can be used as a one-off “sanity check”, or even used as an ongoing audit check of the project.



Pinpoint problems before they appear on the job site.



## WANT TO EXPLORE FURTHER?

Find out how you can make the most of Clash Detective with the Clash Detective User Guide.



Compare multiple inputs

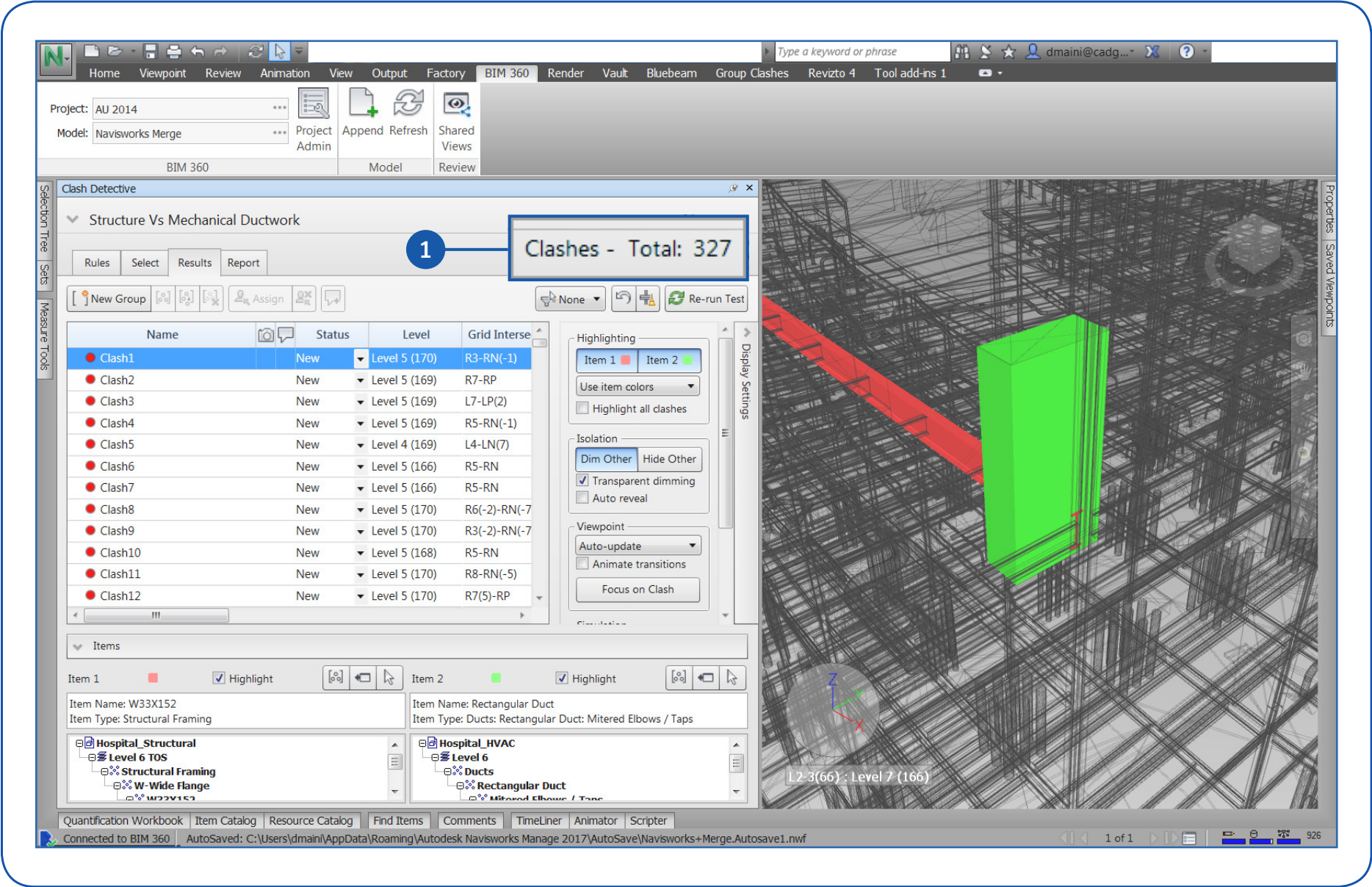
With Clash Detective, you can conduct clash tests between traditional 3D geometry (triangles), and laser-scanned point clouds, so you can compare your plans with onsite reality capture and adjust as necessary.

Spot problems from moving objects

You can link Clash Detective tools to Object Animations to enable you to automatically check interferences between moving objects, whether that’s a crane rotating, a delivery lorry arriving, or any other onsite elements.

See clashes across time

By linking Clash Detective and TimeLiner together, you can run time-based clash checks on the project. Objects can be scheduled to appear or disappear as required, helping you to identify exactly when and where clashes might occur.



Run tests to identify unresolved clashes.



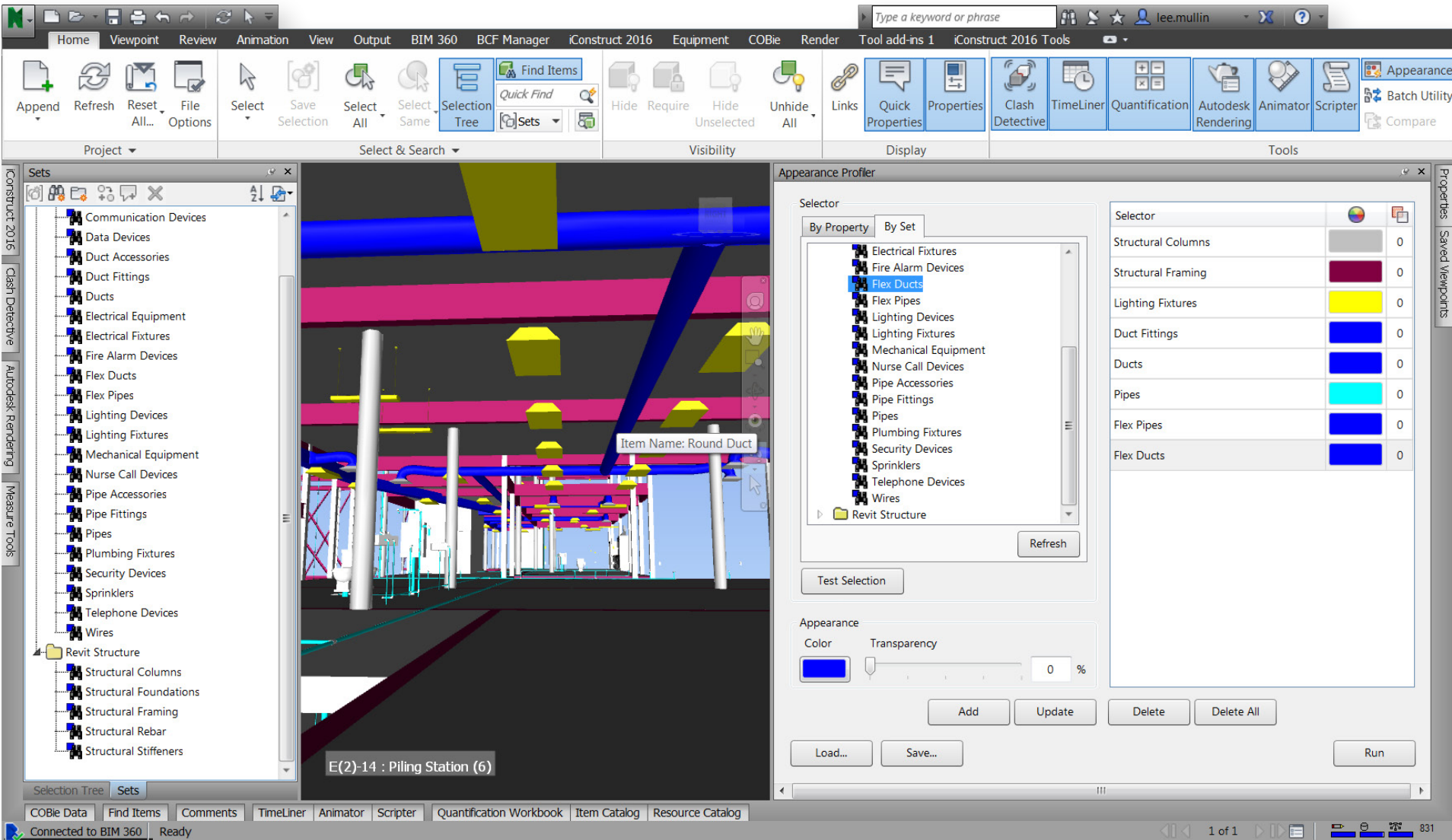
## 2. Model Aggregation

Create a single, multidisciplinary view of all of your construction model information that everyone can review.

With so many teams working across a project, each with their own models, getting a clear overview can prove very challenging.

Navisworks allows you to combine multiple models from various trades (including architecture and civil, MEP, detailers, fabrication, structural engineering, etc.) into a single 3D model that can be used for straightforward visualization, clash detection or virtual inspection.

By laying models into a single view, you can save time by getting a more accurate visualization of the final building, and foresee model conflicts before they cause schedule delays and budget increases.



Quickly combine models in one composite view.



**WANT TO SEE HOW IT WORKS?**

Watch the Model Aggregation Demo Video.



**Benefit from broad compatibility**

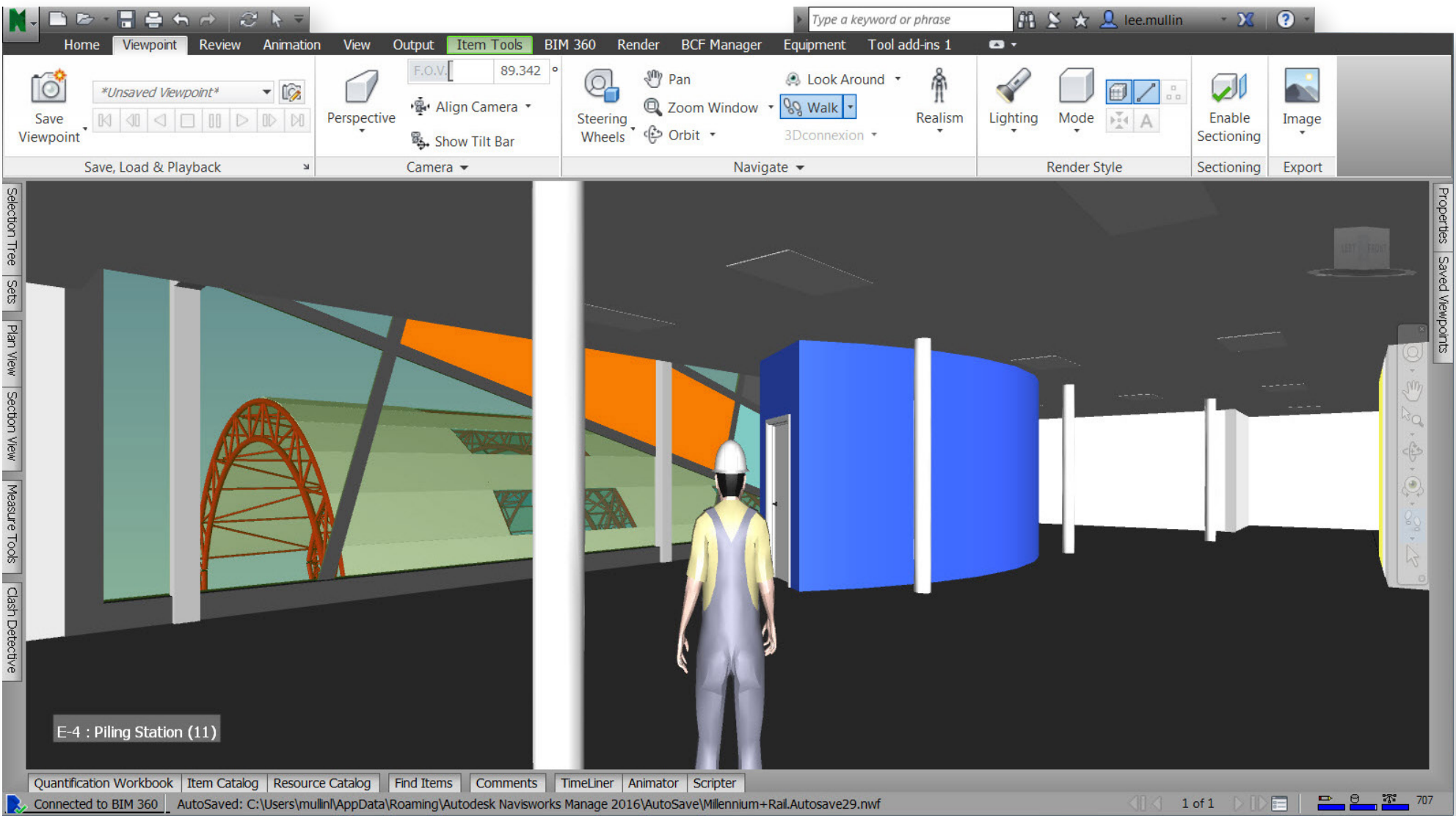
Navisworks supports more than 60 different third-party applications as well as AutoCAD and Revit, so you can easily open and combine different model file types from across the construction ecosystem.

**Get a view of the project from start to finish**

Navisworks merges the entire construction project data set. When aggregated, the files bring together geometry and data created by multi-disciplinary teams and enable you to explore and review complex models in real time.

**Facilitate easy reviewing**

With Navisworks, you can create and distribute a single file with a whole-project view of the model, providing equal access for everyone across the team to explore and review.



Provide equal access to explore the whole project view.



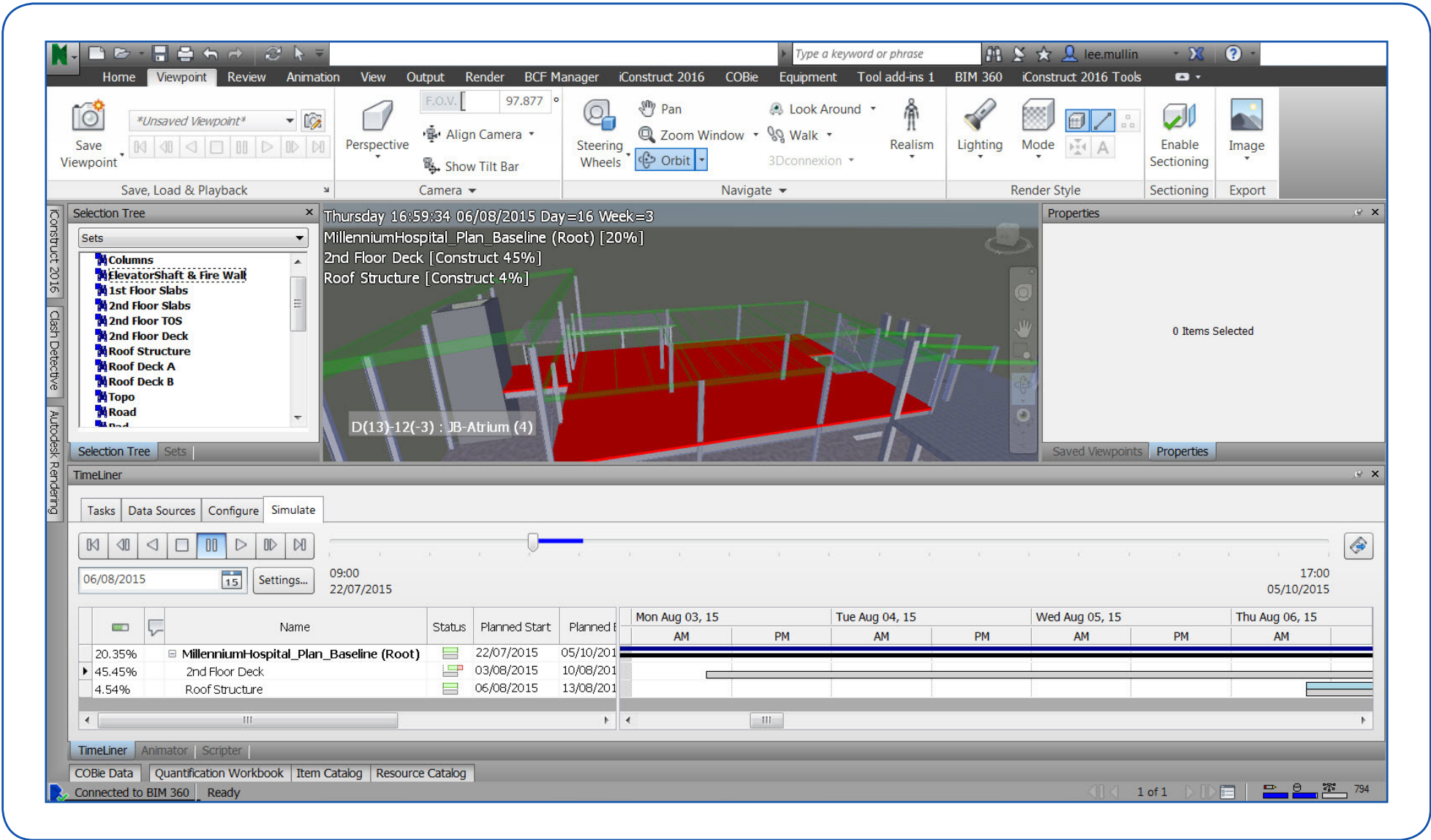
### 3. Simulation & Animation

Animate and interact with objects to give a more accurate view of the model, with real-time simulations.

Delivering an asset is complex, with many moving parts, players and project models across the construction period.

With the TimeLiner tool in Navisworks, you can link your model to an external construction schedule and see a more accurate simulation of all construction tasks in a sequenced animation.

Simulations don't just help you plan. You can use them as a business development tool by showing animations to key stakeholders and the project team, keeping them updated on how construction coordination will look.



#### CURIOUS TO TRY IT FOR YOURSELF?

Use the Animation with TimeLiner Guide.

Clearly simulate construction for straightforward stakeholder updates.



Focus on the details you want

Within your simulations, you can link object and viewpoint animations to your construction schedules, so you can get a broad overview, or zoom in on a particular area or object to see more detail.

Animate what you need

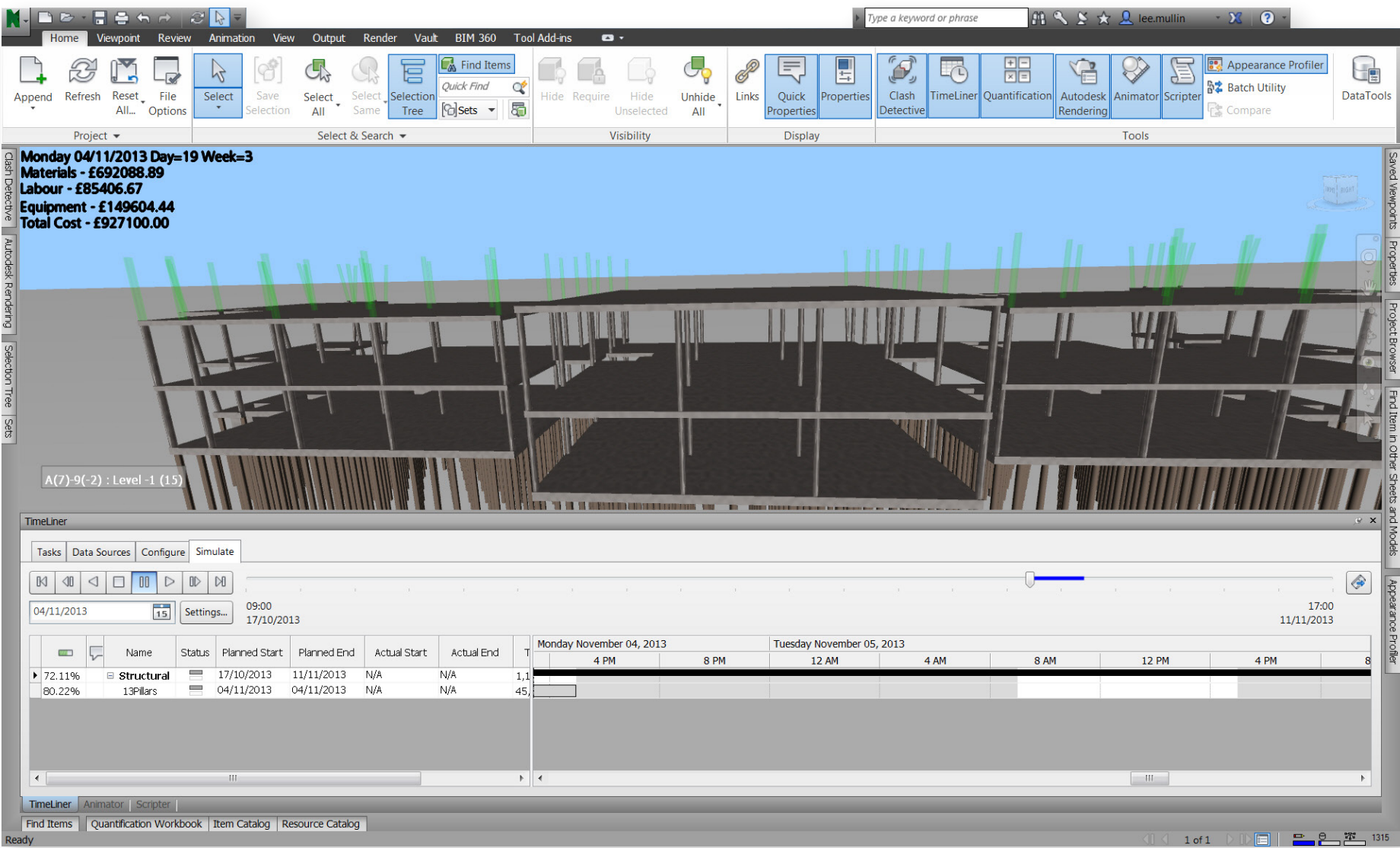
You can add animation to an entire schedule, or just to individual tasks depending on what you need to review. You can even combine animation sequences to create the right simulations for your brief.

Create flexible visualizations

You can add scripts to the tasks in your schedule to gain more control over the properties of each animation. This means you can create the animations you want, whether that means playing them on a timer, backwards, or more.

Project new time and cost implications

Explore time and cost implications for different eventualities by adding overlays to simulations with 5D animation functionality across assembly, operation and disassembly.



Review and communicate project details through 5D analysis and simulation.

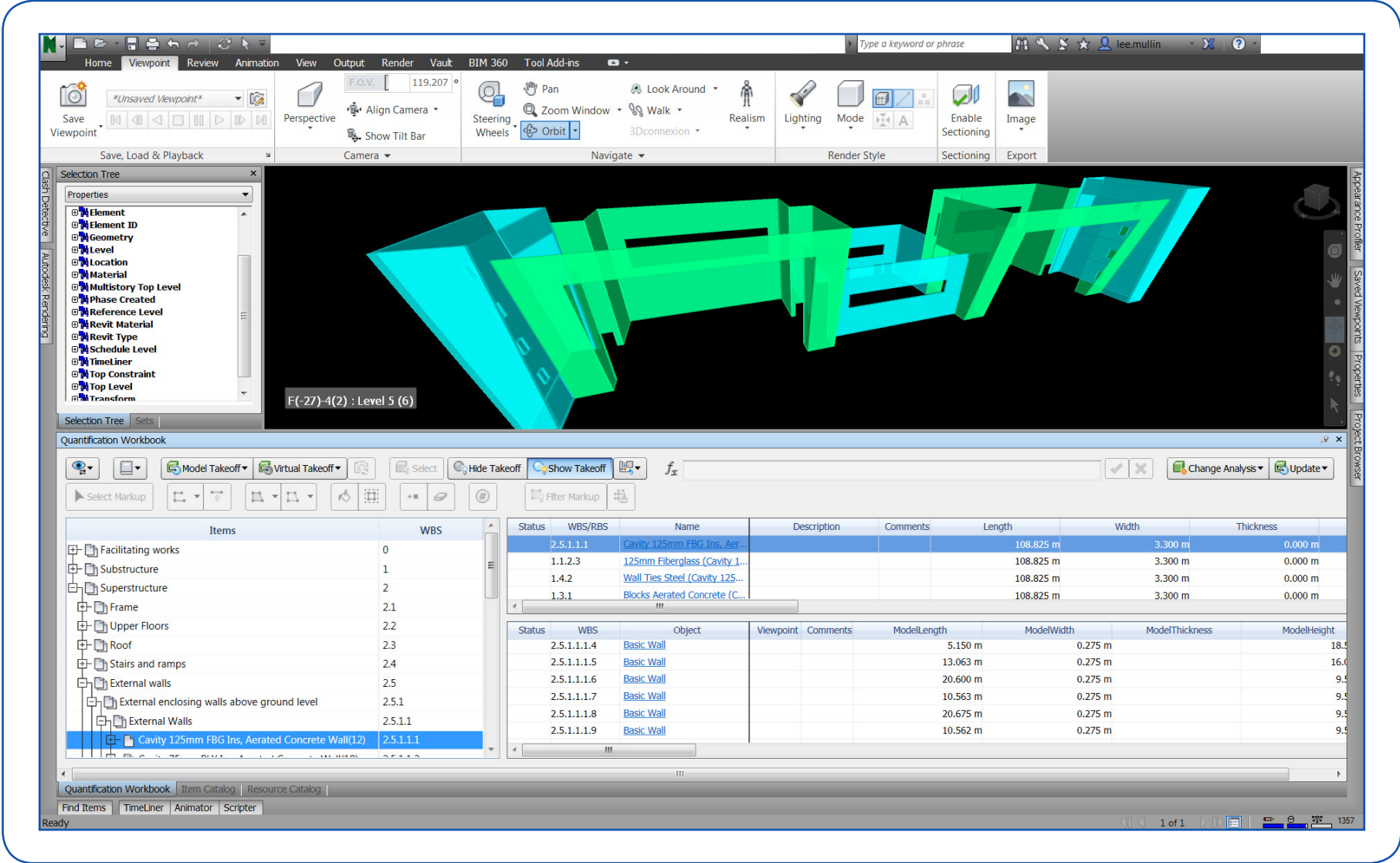


# 4. Quantification

Produce a more accurate view of material quantities and measurements from both 2D and 3D files.

Estimation and costs are vital to every project, yet they also make up the biggest part of a project’s risk. Take control using Navisworks with tools that enable you to gain more visibility into assumptions and more accuracy in measurements, so you can trust your project data more, and better mitigate your project risks.

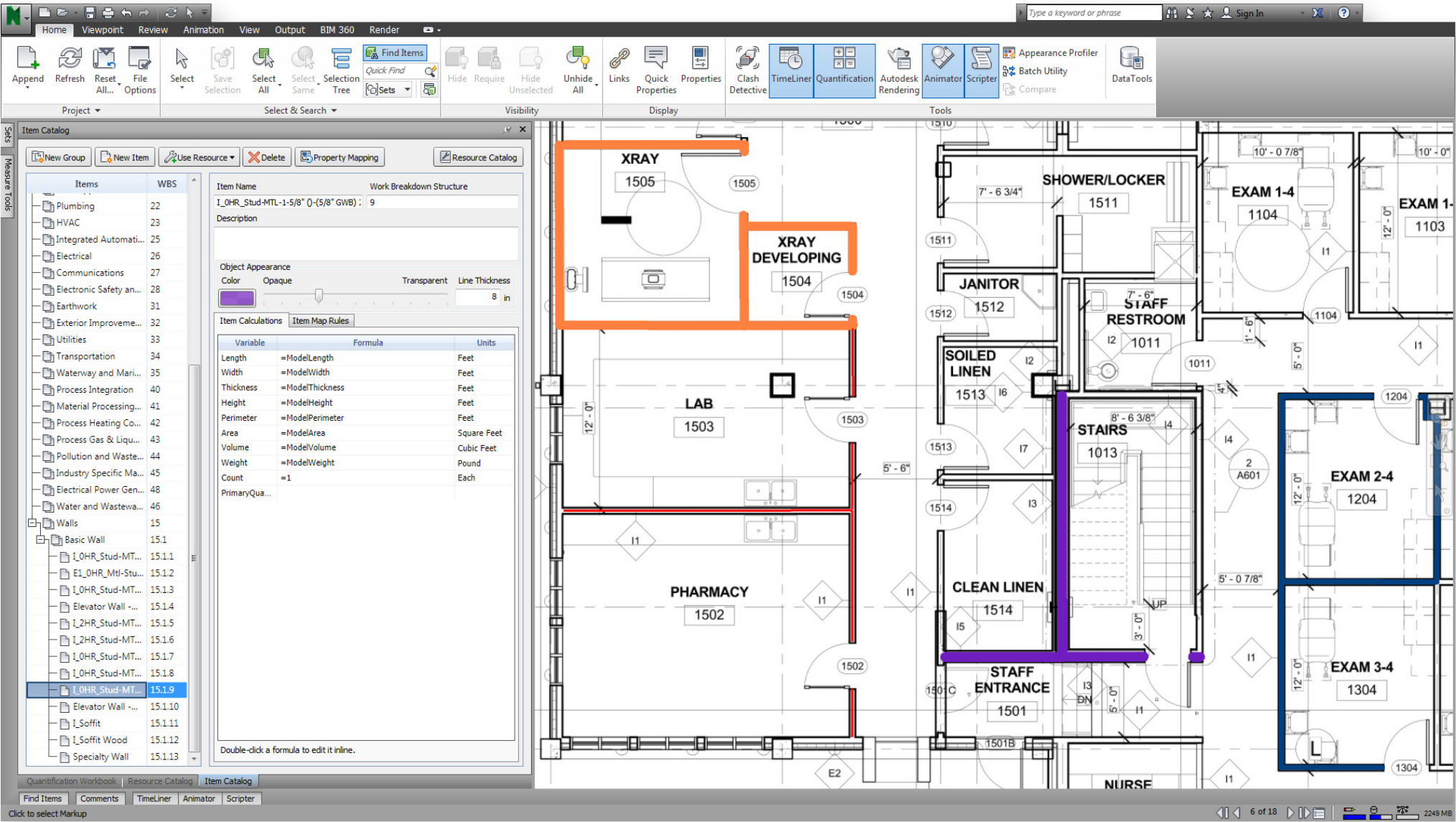
With Navisworks’ built-in Quantification feature, you can automatically make material estimates, measure areas and count building components, directly from your aggregated model. What’s more, you can estimate construction and renovation projects, so you spend less time counting and measuring and more time analyzing projects.



**WANT TO KNOW HOW  
QUANTIFICATION  
COULD WORK IN YOUR  
PROJECT?**

Check out the Quantification User Guide.

Use quantification to simply generate take off of different parts of the project.



Measure lines, areas and counts on 2D sheets and 3D models.

Complete large-scale takeoff quickly

Quantification enables you to takeoff an entire building information model (BIM) and create synchronized project views that combine information from BIM tools such as Revit® and AutoCAD® software together with geometry, images, and data from other tools.

Take control of project updates

Takeoff updates have never been easier to manage than with Quantification. When changes are made to any elements of the model, all quantities are automatically updated and recalculated within the single, multidisciplinary model view.

Estimate missing data

If you need to estimate measurements for items with no associated model geometry or properties, you can also use Quantification to perform a virtual takeoff and complete your model information.

Simply extract data for analysis and sharing

Takeoff data can be directly exported to Excel for analysis – whether that’s for individual items or the entire project. You can also speed data handover by sharing the project model with other project team members in the cloud using Autodesk BIM 360® for optimized collaboration.



# 5. Integration with BIM 360

## Access models in the cloud wherever you are through simple integration with BIM 360 Glue.

BIM 360 Glue allows extended team members across various trades to instantly access multi-discipline project models and information - anytime, anywhere.

Once you've uploaded your models to BIM 360, you can combine the powerful features of Navisworks with the collaborative capabilities of BIM 360 for quicker results, like viewing automated clash reports immediately with your team to resolve issues sooner.

By enabling your projects to be put in the hands of everyone, rather than a select couple of specialists, you are able to generate more clashes, faster – and therefore eliminate more problems before they appear on site.



Access project data anywhere with cloud hosting.



**SEE HOW IT WORKS**  
in the BIM 360: Navisworks  
Integration Video.

Stop clashes before they happen

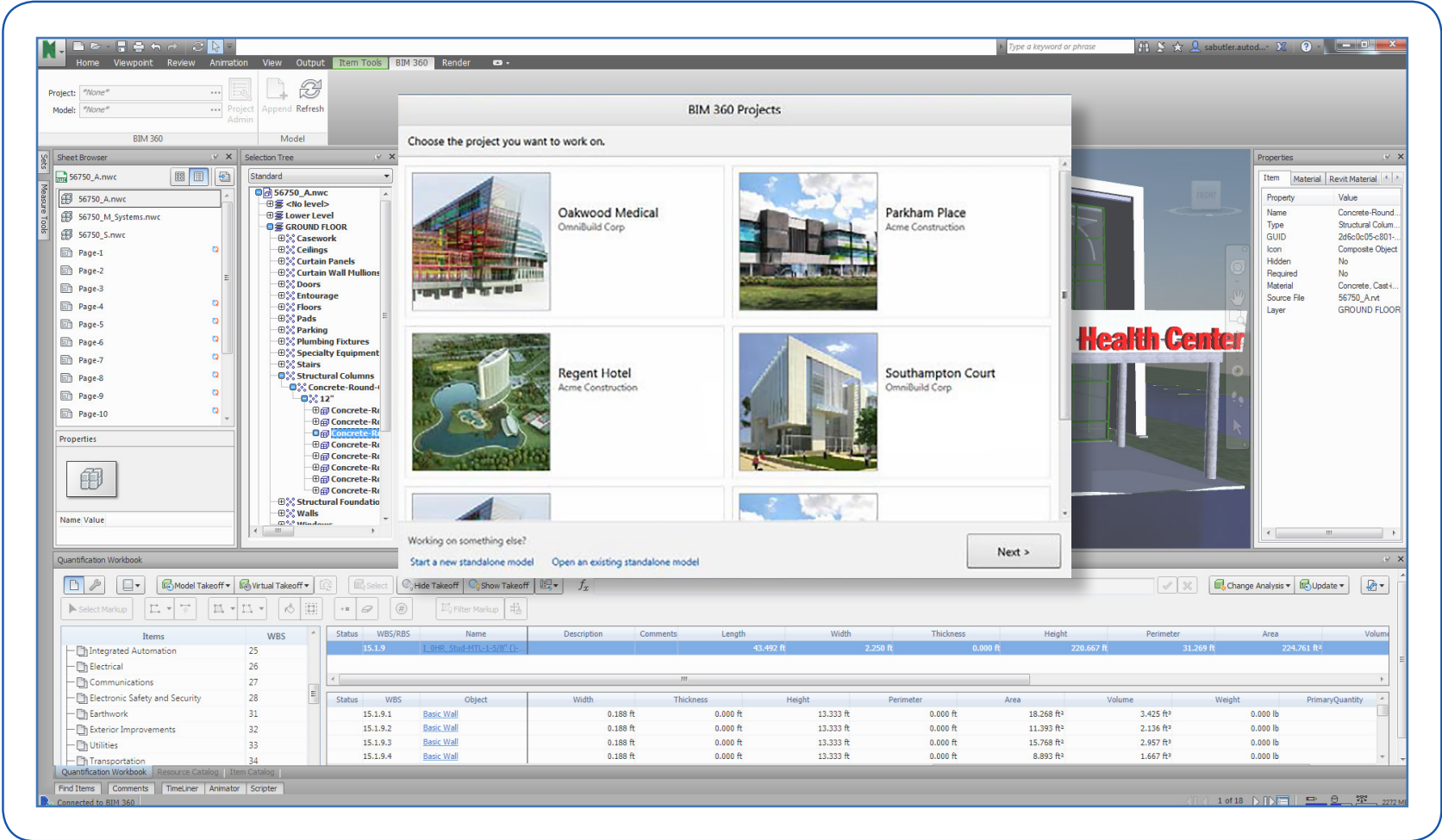
When you use BIM 360 Glue in parallel with Navisworks, you can reduce the amount of time spent manually sorting through clash detections and even to avoid clashes in the first place by using the cloud to crowdsource coordination amongst all team members - regardless of software ability and access.

Get access anywhere

By integrating with BIM 360 Glue, you can access Navisworks-powered models and aggregated models through the mobile app giving you visability anywhere, anytime, including on the jobsite.

Share and edit easily across teams

Integration allows users to share data and workflows with any project already using BIM 360, so you can edit your models in Navisworks and save them directly back in BIM 360 for other team members to access.



Sync BIM 360 projects  
directly from Navisworks.



## Get more from Navisworks with the Autodesk Architecture, Engineering & Construction Collection

With Navisworks you can improve delivery schedules, reduce rework and streamline preconstruction processes so you can focus on what's important.

And when you subscribe to Navisworks as part of the AEC Collection, you can boost your productivity even further by accessing integrated construction software, including Revit, AutoCAD, ReCap and more.

By combining Navisworks with the tools in the AEC Collection, you can simplify your preconstruction workflows for faster results.

### REFERENCE GUIDES:

#### → **Clash Detective User Guide**

Discover how you can run tests and produce reports, from individual objects to full projects.

#### → **Model Aggregation (video)**

See how Navisworks can be used to combine multiple models into a single, multi-purpose model.

#### → **Animation with TimeLiner Guide**

Find out how you can animate tasks and schedules for clearer visualization.

#### → **Quantification User Guide**

Learn how quantification can make takeoff simple, whatever your project data.

#### → **BIM 360:Navisworks Integration (video)**

Understand how Navisworks and BIM 360 work together for seamless delivery.

### ADDITIONAL RESOURCES:

#### → **Navisworks Product Center**

#### → **Autodesk Knowledge Network**

#### → **Navisworks Community Forum**



### INTERESTED?

Click here to explore the AEC Collection for yourself.

