

CS501355

Model Coordination or Navisworks for BIM Coordination: How to Leverage Both

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Learning Objectives

- Learn how to use both Model Coordination and Navisworks to the fullest extent to communicate issues to subcontractors.
- Learn how to execute BIM coordination on large projects.
- Learn about model and file size management—overcoming the challenges of web-based files in coordination.
- Learn about the Autodesk Build platform—Issues, Meeting Minutes, Schedule—and about using the built-in tools to enhance your BIM coordination process.

Description

We've pulled out all of the stops when it comes to the tools we use in building information modeling (BIM) coordination. In this session, we'll explore the various plug-ins for Navisworks software and Revit software that we use to streamline the BIM coordination process, and we'll show how we've optimized our workflow using a combination of Model Coordination and Navisworks to achieve an issue-free model. We'll discuss setting up the Model Coordination space and breaking up coordination models into manageable sizes. We'll cover clash grouping, automated viewpoint creation in Navisworks using HoloBuilder, and the creation of 3D room tags using Dynamo. We'll also discuss using search sets, selection sets, appearance profilers, batch utilities, automated NWC exports, and the use of Autodesk Build software during coordination.

Speaker(s)

Jay Mathes is the Virtual Construction Lead - Civil, with Miron Construction Co., Inc. He has been the BIM coordinator/project lead on dozens of major projects since 2017 and manages the workload and process of all Miron's Civil BIM projects. Jay was named to Autodesk's 40 Under 40: Champions of Construction in 2021 and has experience in many sectors of construction including healthcare, automotive, commercial, food and beverage, and industrial. He graduated from Iowa State University with an M.S. in Civil Engineering and a B.S. in Construction Engineering and is a Licensed Professional Engineer in the state of Wisconsin.



Introduction	0 Minutes
Miron Overview	0 Minutes
Question	2 Minutes
Answer	12 Minutes
Design Model Reviews	14 Minutes
Full Coordination	16 Minutes
Setting up the Model in Navisworks	24 Minutes
ACC Build and Model Coordination	32 Minutes
Closeout and Getting BIM to the Field	36 Minutes
Closing Remarks	40 Minutes

Agenda

- **Overview of Miron Construction**
- **Model Coordination or Navisworks?**
- **Design Model Reviews**
- **Full Coordination**
- **Setting up the model in Navisworks**
- **ACC Build and Model Coordination**
- **Closeout and getting BIM to the Field**

Company Overview

- 100+ year heritage, Fourth generation, Family-owned corporation
- One of the largest builders in the Midwest
- \$1.3 Billion in Revenue in 2021
- 1,500+ employees
- Committed to “Building Excellence”

What works better for BIM Coordination – Model Coordination or Navisworks?

- **Project Startup**
 - Set up the Federated Model
 - Develop the BIM Specification
 - Start the BIM Execution Plan
 - BIM Kickoff Meeting
- **Gain Buy-in from A/E and Ownership**

Build Module – Schedule

- Include time for:
- **Model Development**
- **Underground coordination**
- **Sequence areas**
- **Development of installation drawings**
- **Fabrication and Delivery**

Major Decisions to be Made

- Coordination Areas
- Clash management
- Model Viewing
- Meetings

Design Model Reviews

- Prior to subcontractors
- Set up your lines of communication and file sharing
- Set your models up with BIM coordination in mind
 - How will the issues live on and how will they be communicated?
- This can all be done in Model Coordination
- When is a Design Model Review appropriate?
 - A/E team who is willing to share models
 - Low-complexity project
 - Additions and renovations
- Keep it simple
 - May be working with contractors who have never used a 3D model in construction
 - Patience and Training

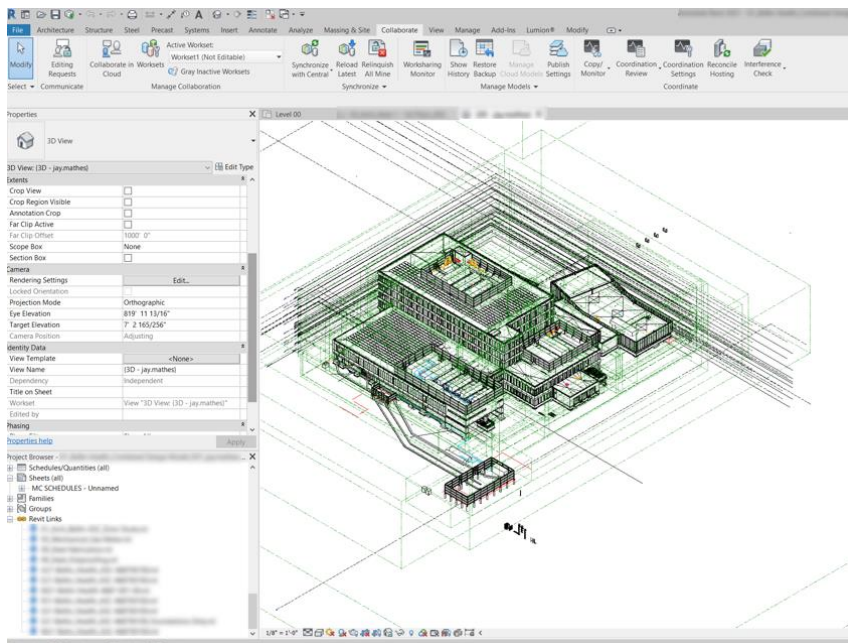
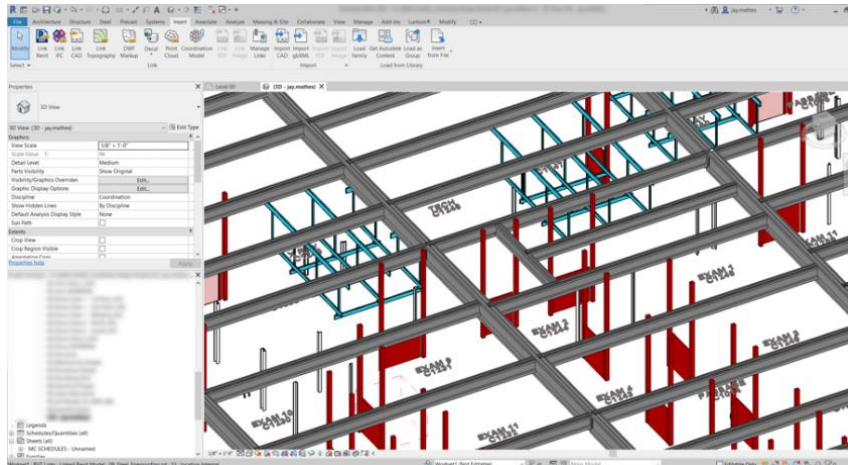
Full Coordination

- Heavy subcontractor involvement
 - Buy-in, both contractually and through more informal agreements
- Many more avenues that can be traveled down
- Need a robust process in place that is still capable of being flexible

Revit

- Set up the Federated Model
 - Mix of design, fabrication, and subcontractor models
 - Links to models stored on ACC, either via desktop connector or the cloud
- Gap model setup
 - Fireproofing on steel
 - Editing design steel families
 - Supplemental steel
 - Subcontracted out
 - King studs for doors
 - Editing door families
 - 3D room tags
 - Dynamo
 - Site models
 - “Tracing” site utility plans
- Use View Templates to easily apply and adjust your views
- Host subcontractor authoring files in ACC
 - Set up views for publishing and views for working
 - Push subcontractors to link each other’s live models

- What happens when you get updates?
 - Design models constantly changing, but the design team is not publishing directly to your coordination space
- Automated NWC exports to desktop connector using Dynamo
 - Using your file naming scheme agreed upon in the BIM Execution Plan, set up views that can be easily identified for your automated exports
 - Set up the Dynamo player to execute these exports



Model Coordination

- After 3D Viewpoints have been published:
- Set up and save viewpoints, encourage subcontractors not to re-name their viewpoints
- Set up an overall viewpoint to manage project-wide issues and discussion topics
- Set up Area viewpoints to match construction sequences
- Finally, start pulling viewpoints into Navisworks

Navisworks

- Saved Viewpoints
- Allows for end-users to drop right into the space
- Search Sets
 - Search sets are an investment
 - The more thorough you are during model setup, the more these search sets will pay off
 - Makes meetings more efficient
 - Visualization of issues improves dramatically
 - Isolating systems in real-time becomes simple
- Search sets vs. selection sets
- Standardize across projects for your company when possible
- Helps to organize the model and easily adapt the viewpoints you would like to share
- Appearance Profilers
- Establish your own standards
- Use industry standards
- Communicate this standard to the end-user



ACC Build and Model Coordination

- Meeting Minutes
 - Identify major issues early
 - Document, document, document
 - Clear, concise, meaningful topics
 - Leave the small items for subcontractors to figure out amongst themselves outside of meeting times
 - Link in progress photos
 - Link issues to meeting topics
 - Record meetings for outside parties to view later

Clash Resolution

- Start in Model Coordination
- Utilize issue assignment
 - Empower subcontractors to create, assign, and update issues
- Set up issue types that are intuitive and easy to filter
- Gap model and specific system clashes
 - Handle these in Navisworks

Clashes

Active Assigned Closed

Search for models

Area 2 - South 12 models (30 hidden)

Select a view

- Overall
- Area 2
- Area 2 - North
- Area 2 - South
- Area 2 - Second Floor
- Area 2 - First Floor

	97		3	157	1	
	105	3		1	256	
	139	220	1		16	2
	83	1	449	15		
	27			2		
	652	163	254	110	227	
	3	42		39		
	9		125		87	
		20		6		
			2		2	

Signoff

- Utilize reports to push the project over the “goal line”
 - Extra level of accountability
 - Track clash and issue numbers over time
 - Utilize reports in ACC
- As a part of the BIM Execution Plan, set expectations for what this model should look like and how it will be delivered to the rest of the team at the end of the project

Closeout and Getting BIM to the Field

- Publish “For Record” models for historical documentation, but encourage subcontractors to continue adding detail to the overall BIM
- Publish subcontractor installation drawings when available
- Train field personnel on how to view models on the iPad in Plangrid-Build, and utilize the viewpoints created in HoloBuilder to help them navigate models more efficiently
- Set up easy, one-click solutions
- Utilize desktop connector
- Utilize the project links and save to your browser favorites
- Encourage feedback from your teams
- “It would be really nice if I could just see _____ in the model”
- Get people out of the “technology cave”

