

Collaborative Coordination Exercise: Leveraging Connected BIM

Insert Academic Institution* – *Insert Industry Partner

Stage 01: Coordination Kickoff Meeting

Overall Exercise Summary:

This collaborative BIM coordination exercise is designed to expose you to real-world BIM processes through a partnership with industry professionals. The exercise will be conducted using the BIM 360 suite of products, which provide project teams with a range of options for project collaboration that differ from the traditional ways of conducting business. Three parts will be conducted to provide a holistic experience, with multiple opportunities for reflection and skill development. Gaining exposure to **real-world collaborative BIM coordination experiences**, will prepare you for situations which will be faced as you begin your career in the architecture, engineering, construction, and owner-operated (AECO) industry.

Learning Objectives:

By the end of Stage 01 of the exercise you will be able to:

- List the BIM360 applications and their associated uses for a construction project.
- Identify appropriate use cases and implementation strategies for each of the presented BIM360 products.
- Conduct QA/QC activities using live models for architectural and structural components

Exercise Stage 01 Goals:

The overall goal of this Stage of the exercise is to lay the foundation for the coordination activities in the remainder of the exercise and kickoff the coordination process. Project teams will be formed and roles established so that every team member has a stake in the project. Furthermore, you will be introduced the BIM 360 environment in which you will be working, including; BIM 360 Docs, Glue, Team, and Collaboration for Revit. Industry partners will conduct a project kickoff meeting and start the coordination process through the setting of expectations as would occur in a true project kickoff meeting. Additionally, project teams will have the opportunity to preliminarily plan their “internal” coordination efforts and outline that plan for the “Owners representative” for review and approval. Finally, teams will be expected to conduct QA/QC model checks for the specified disciplines prior to Stage 02 of this exercise.

The BIM Coordination Kickoff Meeting

The kickoff meeting is a crucial component of preparing for a successful coordination process. Project stakeholders have the opportunity to outline expectations, set roles, and define the needs of the project. Ideally all of the individual team members who will participate in the coordination of the project will take part in this meeting. However, exceptions do occur when sub-contractors have not been selected prior to the time of kickoff. In Part 01 the project manager will run the coordination meeting and outline the roles of each individual team. For the purposes of this exercise it is understood that the MEP sub-contractors have not yet been selected but will be brought in at a later date. Also, the owner has a tight deadline set for the project and getting a jump-start on coordination is the only path forward.

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Be prepared to discuss the project with your team and to set internal goals which will enable you to meet the project manager and owner deadlines. This is your chance to ask questions in preparation for your QA/QC work prior to the first coordination meeting. Ensure you understand what is expected of you and let the project begin.

Level of Development (LOD) and QA/QC Details:

LOD 300

- Model elements will be of a specific system with appropriate size, shape and location within the model.
- This will enable appropriate coordination, based on reliable spatial information, to take place during the subsequent meetings

Model QA/QC

The focus of this exercise will be primarily on the architectural partitions and ceilings, as well as the structural components in the lobby. Each team will be responsible for verifying the provided models for their given building/building sector. During this check teams should be looking for and fixing errors related to:

- » Building component placement for assigned discipline
- » Material Properties
- » Component styles or types which impact shape
- » Component sizing
- » Overall accuracy related to specified design

Project Team Roles:

Owner's Representatives (*Academic Instructors*)

- » Project Owner/Design Team Representative (1 Per Team if possible)
 - The owner's representatives act as the voice of the owner and design team throughout the coordination process. They also coordinate and distribute the necessary data sets for the completion of the exercise.

Student Teams (6 members each)

(Instructor Note: As many teams as necessary, Adjust the team names and include details related to your class specifics here)

- » Partitions QA/QC (2)
 - These individuals focus on the interior partitions of the given building or building sector assigned to their team. The performance of QA/QC checks on the partitions should be conducted and the models prepared for coordination.
- » Ceilings QA/QC (2)
 - These individuals focus on the ceilings and soffits of the given building or building sector assigned to their team. The performance of QA/QC checks on the ceilings and soffits should be conducted and the models prepared for coordination.
- » Structure QA/QC (2)

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- These individuals focus on the major structural components of the building, e.g. beams and columns of the given building or building sector assigned to their team. The performance of QA/QC checks on the structural elements should be conducted and the models prepared for coordination.

Construction/VDC Manager (*Industry Partner*)

- » Project Manager (1)
 - Acts as the project facilitator, running the coordination meeting, setting expectations, and working between the Student teams and owner's representatives throughout the exercise.
- » VDC Manager/ Specialist (1)
 - Conducts the model coordination and review exercises acting as the head BIM manager for the exercise. This person prepares the coordination reports and works with the student teams throughout the exercise.

Homework:

Due 24 hours prior to the start of Stage 02 of this exercise

- » Student teams are to complete QA/QC checks of their specified building components.
- » Any errors are to be adjusted and logged appropriately
- » All modeling work is to be completed using the live exercise model hosted in BIM360 Team, accessed through Collaboration for Revit
- » All work is to be completed 24 hours prior to the announced start of Stage 02

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Stage 02: Project Coordination

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Learning Objectives:

By the end of Stage 02 of the exercise you will be able to:

- Create and execute project tasks in each of the presented BIM360 applications.
- Complete coordination reviews and exercises in BIM 360 Glue
- Utilize Collaboration for Revit to simultaneously model and review projects with team members.
- Understand how a coordination meeting is run and the basic roles of the various project stakeholders for a standard project.

Exercise Part 02 Goals:

During Stage 02 of this exercise project teams will be expected to participate in a 2-3-hour BIM coordination meeting. All project stakeholders must be present and logged into the live model through Collaboration for Revit, hosted on BIM 360 Team. Model and design coordination will take place in the BIM 360 glue environment and will be navigated by the project manager. The project teams will work to correct mistakes and make changes live during this session with periodic breaks for updated models to be pushed to BIM 360 Glue. The coordination report will be updated at multiple stages during the exercise to demonstrate progress and to allow for continued effort by all stakeholders to occur. All project team members are expected to manage their assigned building areas and to actively participate in the problem identification and solving process. The Owner's representative will be attending the meeting as well, which means the utmost level of professionalism and effort is expected. Also, be prepared for a curveball or two throughout the meeting as the project develops during coordination.

Coordination Timeline

Project coordination meetings can vary in length and frequency depending on the project, however it is not uncommon to have a longer meeting at the start of the project to jumpstart the process. Ideally all of the project stakeholders who are responsible for the design, coordination or installation management of the various building systems are present at the meetings to streamline the decision making process. With everyone present it is possible to resolve issues live and to work more efficiently toward the development of a "buildable" product. In this spirit the coordination process you will experience in this stage of the exercise will simulate a longer, comprehensive review meeting focused on solving problems and making live updates.

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The 3-hour coordination meeting will follow the schedule below which will allow for multiple review stages and for every team to receive focused feedback on their areas. Furthermore, teams are only permitted to speak directly with one another when they are the “focus” team, outside of those times, they are expected to use the communicator in Revit. This will ensure clean communication channels between the working academic environment and industry partners. Please review the schedule and ensure you and your team are ready for your specified review times.

Collaborative Coordination Timeline (3 hour) **Sample**				
Time	Coordination Focus	Group A	Group B	Group C
5:00	All	Exercise and Model Overview		
5:10				
5:20	Group A Area	Coordination Review	Internal Review	Internal Review
5:30				
5:40	Group B Area	Internal Review	Coordination Review	
5:50				
6:00	Group C Area	Internal Review	Internal Review	Coordination Review
6:10				
6:20	All	Model Change Review and Common Issue Discussion		
6:30				
6:40	Upload to Glue			
6:50	Group A Area	Coordination Review	Internal Review	Internal Review
7:00	Group B Area	Internal Review	Coordination Review	
7:10	Group C Area		Internal Review	Coordination Review
7:20	All	Model Change Review and Iterative Review Discussion		
7:30				
7:40	Upload to Glue			
7:50	All	Final Review of Model Change and Coordination Processes		
8:00				

Homework

Due prior to the start of Stage 03 of this exercise

- » Student are to complete the debrief survey, at the link below, for this exercise and reflect on the experience as a whole
- » Responses should be thorough and focus on how the experience has shaped your understanding of project coordination enabled by connected BIM

*Survey Link ***Insert the link to your online survey here for the students****

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Stage 03: Coordination Debrief

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Learning Objectives:

By the end of Stage 03 of the exercise you will be able to:

- Demonstrate understanding of the complexities of the BIM coordination process
- Identify common difficulties in the coordination process.
- Meaningfully participate in real-world coordination processes.

Exercise Part 03 Goals:

In Stage 03 of this exercise a brief coordination meeting will be held to review final changes and to discuss the next steps should coordination continue, as it would in industry. This will be the project team's opportunity to review each other's work and have a discussion about the coordination process as a whole. The discussion will be facilitated by the course instructor and industry partners with the goal of inspiring an appreciation for the collaborative BIM coordination process. Furthermore, everyone will be able to share lessons learned and discuss how the use of the BIM 360 suite of products impacted the process. Prior to the start of Stage 03 everyone wrote a debrief statement where a concise review and reflection of the experience was shared and should be used to help shape individual contributions to this discussion.

This is your chance to gain valuable insight to the world of connected BIM and project coordination from the perspective of an industry partner who operates in the technological world every day. Ask questions, dig deep, and try to learn as much as you can. Experience is the key to meaningful learning and this exercise was your first step towards applying your academic knowledge to real world scenarios.

Homework

Moving forward into your career...

- » Take the lessons you have learned here and bring them to your internships and future careers in the AEC industry
- » Always remember to consider the roles of everyone on a project team and work toward everyone's success during coordination not just your own.
- » Build upon the foundation you have laid during this exercise to be an active and positive part of project coordination and BIM processes on all of your jobs, regardless of your role