



BIM Execution Plan (BxP) Development Guide

This BIM Execution Plan (BxP) Development Guide is your roadmap toward creating an effective BxP for your next project. This guide will ensure all parties understand the opportunities and responsibilities of integrating BIM into the project workflow. It defines the appropriate uses of BIM on a project and provides a detailed process for implementing BIM throughout a project's lifecycle.

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1

Goals and Guidelines



1.0 Goals and Guidelines

What is a BIM Execution Plan?

A BIM Execution Plan (BxP) is a roadmap for using Building Information Modeling (BIM) on your project. It helps everyone understand how BIM will be used, what opportunities it offers, and who's responsible for what throughout the project's lifecycle. The primary goal of a BxP is to get all project stakeholders aligned on how BIM technology will be implemented and utilized at every stage of the project.

Specific Goals

Your BxP should list specific goals for using BIM. Some examples:

1. Meeting owner requirements:
 - Provide a final as-built BIM model for facility management
 - Reduce change orders
 - Submit a final BIM record of all as-built conditions
2. Reduce errors and rework during construction
3. Improve design collaboration between all project team members
4. Meet all project deadlines
5. Increase accuracy in cost and quantity estimates
6. Enhance risk management and safety planning

1.1 Intended Uses

List all the ways you plan to use the BIM model during design and/or construction. Common uses include:

- | | |
|---------------------------------|-------------------------------------|
| ● Creating Visualizations | ● Simulating Construction Schedules |
| ● Reviewing Constructability | ● Detecting and Resolving Clashes |
| ● Planning Safety and Logistics | ● Capturing As-Built Conditions |
| ● Estimating Quantities | ● Managing Facilities |

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Project Information

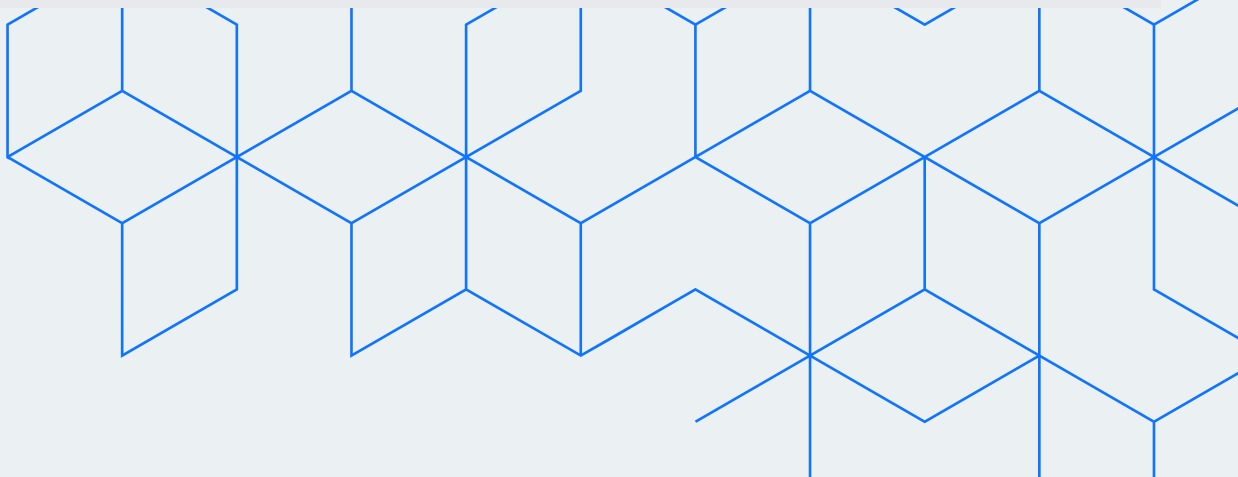


2.0 Project Information

The BxP should include key project data to help all team members understand the project context. This information helps align BIM activities with project goals, manage resources, and improve communication. Here's what to include:

- Project basics: Name, address, and software version (e.g., Revit year)
- Project details: Type (e.g., residential, commercial), scope (new construction, renovation), number of buildings, and total square footage
- BIM specifics: Required Level of Detail (LOD)
- Timeline: Key dates including BIM kick-off meeting, design phases, and construction period
- Collaboration tools: File sharing platform

Key Project Data	
Project Name	[Name]
Project Address	[Full Address]
Revit Year + Build	[Year + Version]
Project Structure	
Project Type	[e.g., Commercial]
Project Scope	[e.g., New Construction]
Number of Buildings	[Number]
Proposed GSF	[Square Footage]
Scope	
Level of Detail (LOD)	[Level]
Timeline + Coordination	
BIM Kick-Off Meeting Date	[Date]
File Sharing Platform	[Name]
Design Timeline	[Start-End Dates]
Construction Timeline	[Start-End Dates]



3 Roles and Responsibilities



3.0 Roles & Responsibilities

The BxP should clearly define each participant's role in the BIM process. This ensures everyone understands their responsibilities and how their work fits into the project. Key roles typically include:

3.1 Architects & Engineers

The traditional design team will lead the authoring of the Design BIM Models.

3.2 Project BIM Manager

The Project BIM Manager oversees the entire BIM process. They play a crucial role in ensuring the successful implementation of BIM and the achievement of client-defined goals. This individual is responsible for developing and maintaining the BIM Execution Plan, which serves as the roadmap for all BIM activities on the project. The Project BIM Manager's primary focus is to align BIM processes with the client's objectives, whether those are improving coordination, reducing costs, enhancing sustainability, or streamlining facility management.

Key responsibilities include:

- Translating client goals into actionable BIM strategies
- Developing project-specific BIM guidelines and standards
- Managing collaboration workflows among all project stakeholders
- Validating and verifying BIM model and data quality
- Coordinating clash detection and resolution processes
- Providing BIM training and support to project team members
- Monitoring and tracking BIM implementation throughout the project timeline
- Ensuring BIM deliverables meet client requirements and industry standards
- Facilitating communication between the client, design team, and contractors regarding BIM-related matters

3.3 Discipline BIM Manager

Each participating company should appoint a Discipline BIM Manager for their team. These managers play a critical role in executing the BIM strategy set forth by the Project BIM Manager and are essential to achieving overall project goals.

Discipline BIM Managers are responsible for:

- Implementing Project BIM Manager requirements within their discipline
- Ensuring quality and accuracy of their team's BIM content
- Being the main contact for BIM-related issues
- Managing their team's BIM and 3D information
- Coordinating with other discipline BIM managers
- Validating model detail levels for each project phase
- Participating in design reviews and coordination sessions
- Maintaining file naming conventions and version control
- Properly storing models in the project management system

These managers bridge the gap between overall BIM strategy and its practical implementation within each discipline. They ensure their team's deliverables align with project standards and contribute to achieving project goals, fostering a collaborative BIM environment that drives project success.

Example role chart:

Discipline	Company	Team Member	Role
Architecture	[Company Name]	[Name]	Architect
Structural	[Company Name]	[Name]	BIM Manager
Landscape	[Company Name]	[Name]	BIM Manager
MEP/FP	[Company Name]	[Name]	BIM Manager
[Other Disciplines]	[Company Name]	[Name]	BIM Manager
BIM Consultant	[Company Name]	[Name]	Project BIM Manager

4

Project Naming Conventions



4.0 Project Naming Conventions

Consistent file naming is crucial for clarity, organization, and collaboration in a BIM environment. This section outlines key naming conventions.

4.1 Model Files

A standard for the names of model files should be established and described in the BxP. An example should be provided for clarity. See example below.

[Project Identification Code]- [Area Code if applicable]-[DISCIPLINE CODE]-[Revit Year if Applicable]

Example: CC-100-A-R23
CC-A-R23

The **Project Identification Code** is a unique identifier assigned to a specific project. Typically, it is a combination of letters and numbers that summarize essential details about the project such as the client, location, or project type. Including this code in the file naming convention allows for easy identification, which is helpful for stakeholders who are working on multiple projects simultaneously.

The **Area Code** is a unique identifier that specifies a particular geographic or functional area within a project, such as a specific building or floor. Large projects are often organized and planned using areas. Including an Area Code enhances overall project organization and allows for easy file searchability.

The **Discipline Code** is a unique identifier that denotes the specific professional discipline involved in the file, such as architecture, structural engineering, MEP engineering disciplines, or landscape design. Including a discipline code allows for easier identification of file content and enhances coordination among different teams of professionals.

The **Revit Year** in a file naming convention indicates the version of Autodesk Revit used to create the file. Including this in the file name ensures software compatibility and helps maintain consistency, especially on projects with long schedules.

Sample Chart for Discipline Codes

Discipline Name	Designator Code
Architectural	A
General	G
Title/Coversheet	T
Antenna	ANT
Hazardous Materials	H
Landscape	L
Civil	C
Mechanical	M
Electrical	E
Plumbing	P
Borings/Geotechnical	B
Builders Pavement Plan	BBP
Curb Cut	CC
Demolition	DM
Energy Code Compliance	EN
Construction Related Equipment	EQ
Fire Suppression Systems	F
Fire Alarms	FA
Foundations	FO
Fire Protection	FP
Structural	S
Stand Pipe	SD
Signs	SG
Excavation	SOE
Sprinkler	SP
Sprinkler & Standpipe	SP/SD
Site Safety	SSP
Other Disciplines	X

4.2 Revisions

The BxP should provide clear guidance and standards for the naming convention of revised files to support effective version control, collaboration, and communication within the project team. By establishing a structured approach to the revision convention, project stakeholders can maintain clarity, consistency, and accuracy in file management throughout the project lifecycle.

4.3 Federated Coordination Files (NWD/NWF)

A federated coordination file (NWD/NWF) is a composite model created using Autodesk Navisworks. It integrates various discipline-specific models into a single, cohesive file, facilitating clash detection, design review, and collaboration among project teams to ensure seamless coordination and resolution of potential conflicts in the design. This file is created by the project BIM manager. Federated files should follow the naming conventions as defined above- a recommended discipline code for these files is "FED".

4.4 Worksets

A BxP should provide guidance on worksets and create some standardization. Revit worksets are like sections within a building model that help organize and manage different parts of a project. They allow multiple team members to work on the model at the same time without interfering with each other. Worksets can also be used to group objects by discipline (like architecture or engineering), control visibility, and manage large projects more efficiently by dividing the model into manageable pieces.

Some basic guidance for project teams: The number of worksets should be limited as much as possible. Levels and Grids should be on the "Shared Levels and Grids" workset. If project teams have more than one discipline included in the BIM model, they should be broken into separate worksets.

Below is a sample naming convention for worksets:

[DISCIPLINE CODE]-[Elements]

See Section above for **Discipline Codes**

Examples of workset naming:

A-General
 A-Furniture
 A-Site
 M-Supply
 M-Exhaust
 P-Drainage
 P-Sanitary
 CAD-** (all CAD-related information, including plans, sections, etc.)
 "Z" Worksets - see Section 6.4 for Coordination of Modeled Elements

Linked Revit models should be on their own worksets; this allows the opening of links to be controlled through worksets when opening the model.

See the naming convention below:

LINK-[DISCIPLINE CODE]

4.5 Sheets

The BxP can provide standards for the composition of drawing sheets and titleblocks.

A unified drawing list can be created in Revit from linked files. For sheets to be included in deliverables, the parameter "include in Sheet List" in the sheet properties should be checked.

4.6 Phasing

The BxP should provide a project standard for using phases within Revit and establish standard names for project phases. It is important to standardize the phasing of existing-to-remain and existing-to-be-demolished model elements.

4.7 Shared Levels and Grids

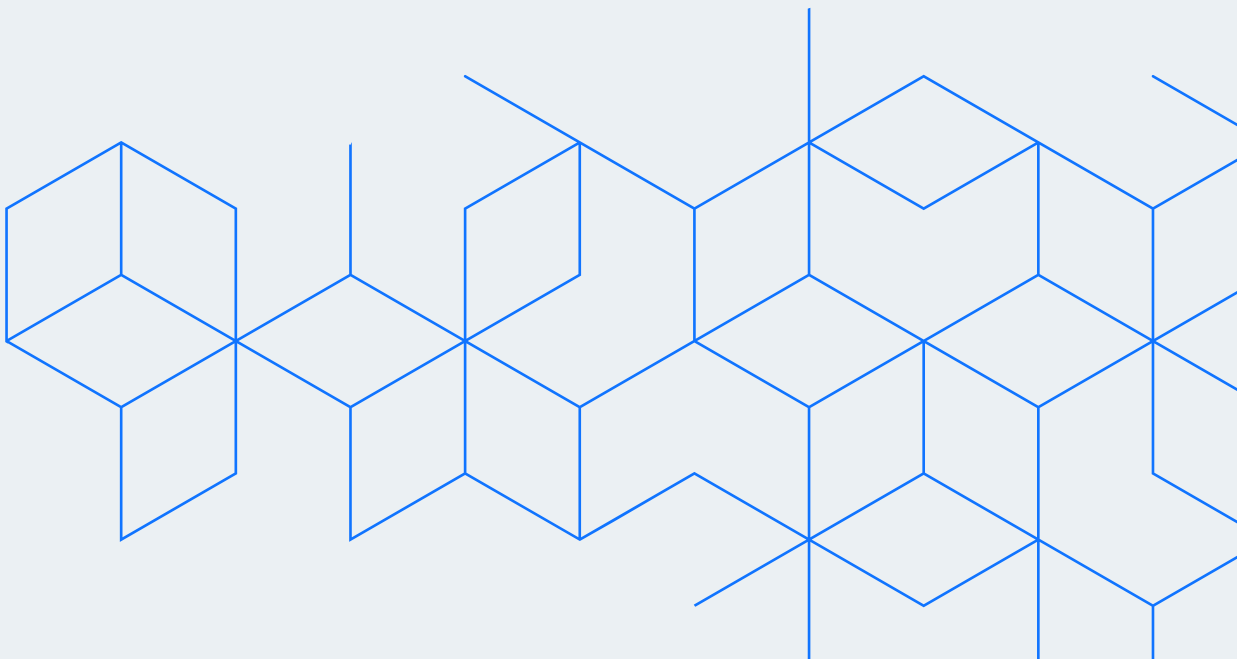
The BxP can specify a "host model" for levels and grids. All other models should Copy/Monitor the grids and levels from the host model. Each model should have copies of the grid lines and level lines relevant to that model. It can also be useful to list and define levels in the BxP- for example, "Level 1 – Top of Finish Floor" or "Basement – Top of Slab".

4.8 Graphics

The BxP can standardize visibility and graphics settings within Revit. In addition, a Revit template file can be provided alongside the BxP to provide specific fonts, titleblocks, line styles, etc.

4.9 Model Data Requirements

The BxP can provide guidance and standards for specific model data, ensuring compliance with industry standards like COBie. In the case of data requirements, it is important to use the BxP to outline requirements for data format, classification, and attributes to facilitate interoperability and information exchange. The BxP should specify responsibilities for data collection, validation, and maintenance throughout the project lifecycle. Additionally, it defines workflows for incorporating data into the BIM model, ensuring accurate representation of asset information for facility management.



5

Project Positioning



5.0 Project Positioning

5.1 Site Survey

By addressing the site survey point and model origin point within the BxP, project teams can establish a solid foundation for accurate geospatial coordination and alignment between the digital model and the physical site.

5.2 Project Positioning in Revit

In Revit models, the origin described above is the Survey Point of the Shared Coordinates. Shared Coordinates will link all models. When first starting a model, link the corresponding architectural model in Origin to Origin and acquire Coordinates from that model. The “Acquire Coordinates” command in Autodesk Revit converts the link’s coordinates to the Shared Coordinates.

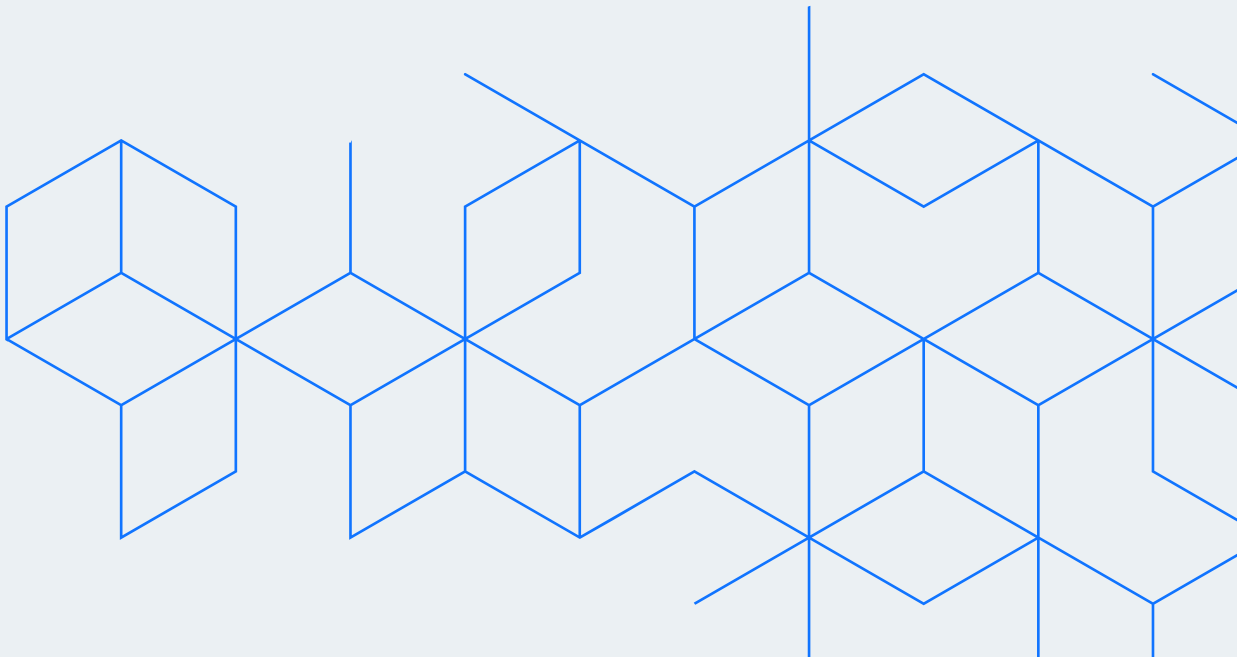
Example formatting is provided below:

Model Origin Point

0,0,0

Model Coordinate System

Shared



6

Collaboration Strategies



6.0 Collaboration Strategies

6.1 Collaboration Software

The BxP should specify the platform(s) to be used for collaboration. This might include AutoDesk Construction Cloud (ACC), ProCore, Trimble, Tekla, a file sharing site or a combination of multiple platforms. The BxP may provide some additional information regarding the operation of that platform. For example, the Project Name on ACC, standard folder structure on ACC Docs, or the use of ACC Issues.

6.2 Meeting Procedures

Regular BIM coordination meetings are essential for project success. These meetings should have a clear structure and purpose.

- Define meeting objectives and required attendees
- Establish a consistent schedule (e.g., weekly or bi-weekly)
- Encourage active participation from all team members
- Address current BIM-related issues
- Review clash detection reports
- Discuss upcoming milestones
- Assign action items with clear deadlines and responsible parties
- Promptly distribute detailed minutes after each meeting, including:
 - Decisions made
 - Tasks assigned
 - Information for team members unable to attend

Effective BIM meetings facilitate collaboration, resolve conflicts quickly, and keep the project on track. By following these procedures, teams can maximize the benefits of BIM coordination meetings and drive project success.

6.3 Model Exchange Schedule

The BxP should create a schedule for uploading and publishing models. It is important to provide a standard for both the timing and the content of the exchange—for example, “Every Friday by 5PM, Revit models should be published, and an NWC file should be exported and uploaded to the Collaboration Platform.”

6.4 Coordination Model Elements

To manage visibility of important elements, create special coordination worksets in the architectural or structural model, prefixed with "Z_". These worksets should be hidden for documentation but visible in coordination views.

Some examples include:

Structural Floors:	Z_S-FLRS
Structural Columns:	Z_S-COLS
Structural Walls:	Z_S-WALL
Mechanical Equip:	Z_MECH
Light Fixtures:	Z_E-LIGHT
Plumbing Fixtures:	Z_P-FIXT
Outlets and Switches:	Z_E-RCPT

6.5 Model Deliverables and Software

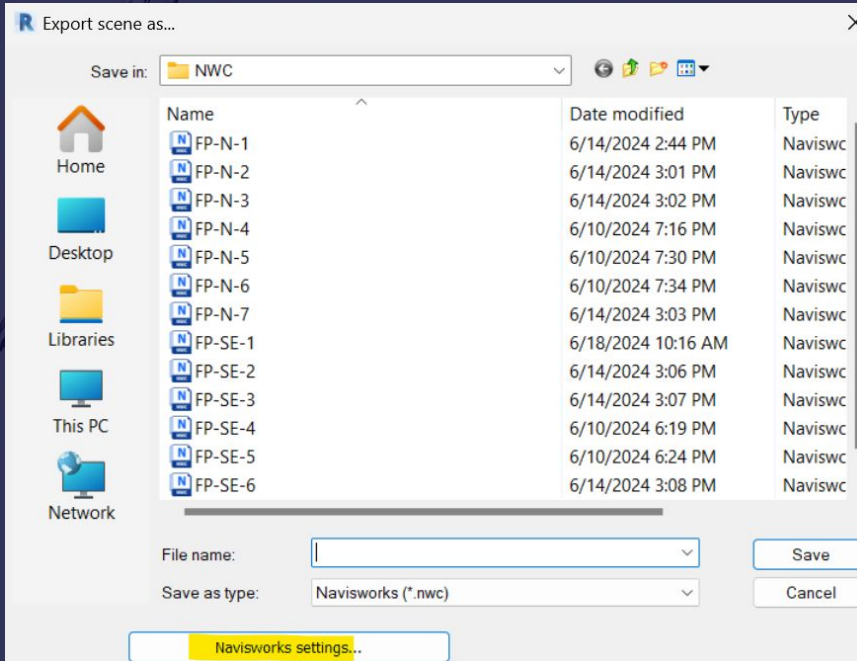
The BxP should provide standards on the format of model file deliverables and the required software for the project. An example:

To conduct coordination meetings, all native models shall be exported as Navisworks Cache files (NWC). The BIM software used to create the Federated Model will be Autodesk Navisworks Manage 2022. All collision reports, viewpoints, problem areas, and notations will be published in Navisworks NWD files. All Coordination Team members should have (at a minimum) the current version of Navisworks Freedom. All BIM Managers must have the current version of Navisworks Manage to view and work within the file(s) provided.

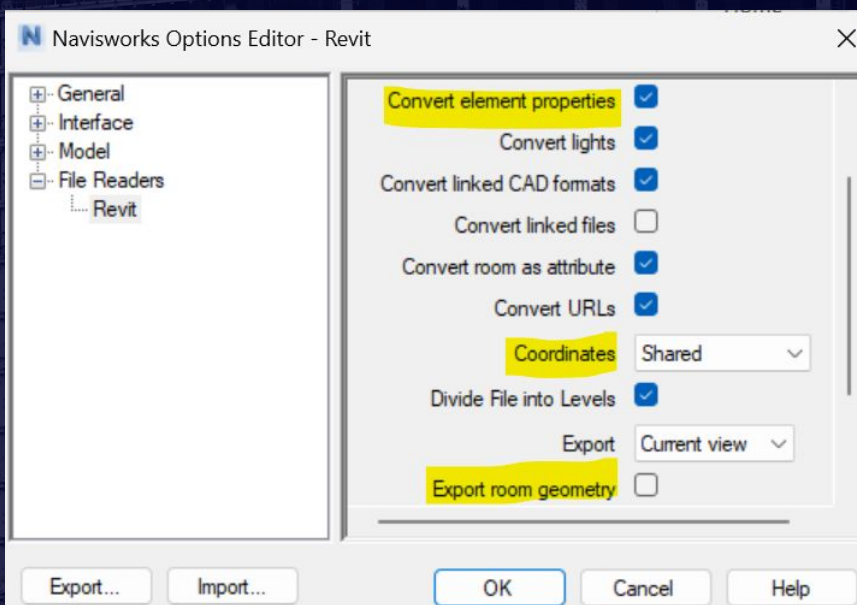
6.6 NWC Exports

The BxP can provide guidance on the exporting of NWCs. An example is provided below:

When exporting model information to NWC format, all links, scope boxes, and any modeled content positioned outside of the building scope should be hidden within the view prior to export. NWC exports are to use the following Revit settings, which can be set in the "Export/NWC/Navisworks settings...": (See screenshot on next page)



In the File Readers/Revit tab:
 Convert Element Properties: **Checked**
 Coordinates: **Shared**
 Export Room Geometry: **Unchecked**



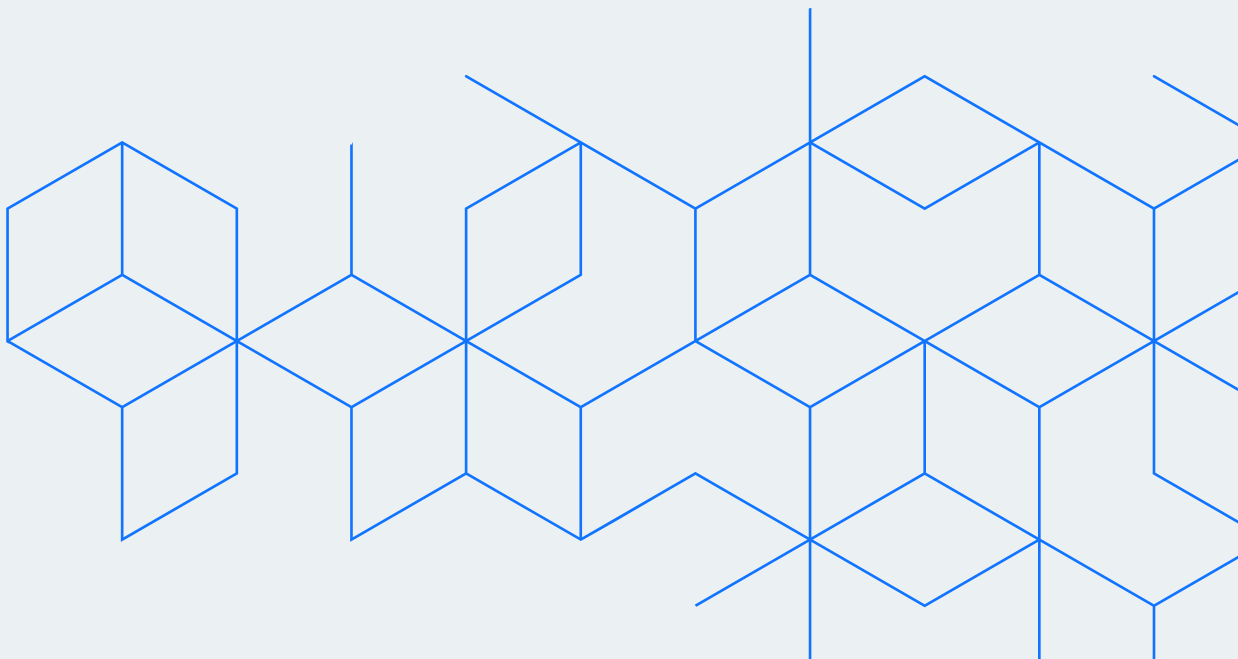
6.7 Sign Off Procedure

The BIM coordination sign-off process ensures all team members agree on the model's accuracy before moving on to coordinate other sections of the building or approving the coordination model to be used for construction.

Here's a simplified approach toward facilitating sign off:

1. After coordination meetings, each discipline checks their model.
2. Team members sign off on their parts, approving the model for use.
3. Any unresolved issues are noted and addressed.
4. Final sign-off occurs when all parties are satisfied.
5. Use e-signature tools like DocuSign for efficient approvals.

This process helps align the team, reduce conflicts, and keep the project moving smoothly. It creates a clear record of approvals and ensures everyone is on the same page before proceeding to the next project phase.





Quality Control



7.0 Quality Control

7.1 Overall Strategy for Quality Control

Quality control in BIM is a shared responsibility across the project team. BIM managers in each discipline are responsible for maintaining BIM standards within their team. Various techniques should be used to check model quality, including visual inspections in Revit, clash detection in Navisworks, and regular model audits. See the chart below for example:

Check	Software Used	Responsibility	Performed
Visual inspection of models	Revit	Everyone working in the BIM model	Daily
Clash detection	Navisworks	BIM manager	Once a week
Model integrity checklist	Revit	Project BIM manager	Before each deliverable

7.2 Model Accuracy and Tolerances

The BxP should clearly define two key aspects of model precision:

1. **Clash Detection Tolerance:** This is the maximum allowable overlap or gap between different elements in the model. For example, a tolerance of 5mm means that if two elements are closer than 5mm or overlap by less than 5mm, it won't be flagged as a clash. This helps focus on significant conflicts while ignoring minor issues that won't affect construction.
2. **Model Accuracy:** This refers to how closely the digital model must represent real-world dimensions. For instance, the plan might specify that structural elements must be modeled within $\pm 5\text{mm}$ of their actual size. This ensures that the BIM model is sufficiently accurate for fabrication and construction purposes.

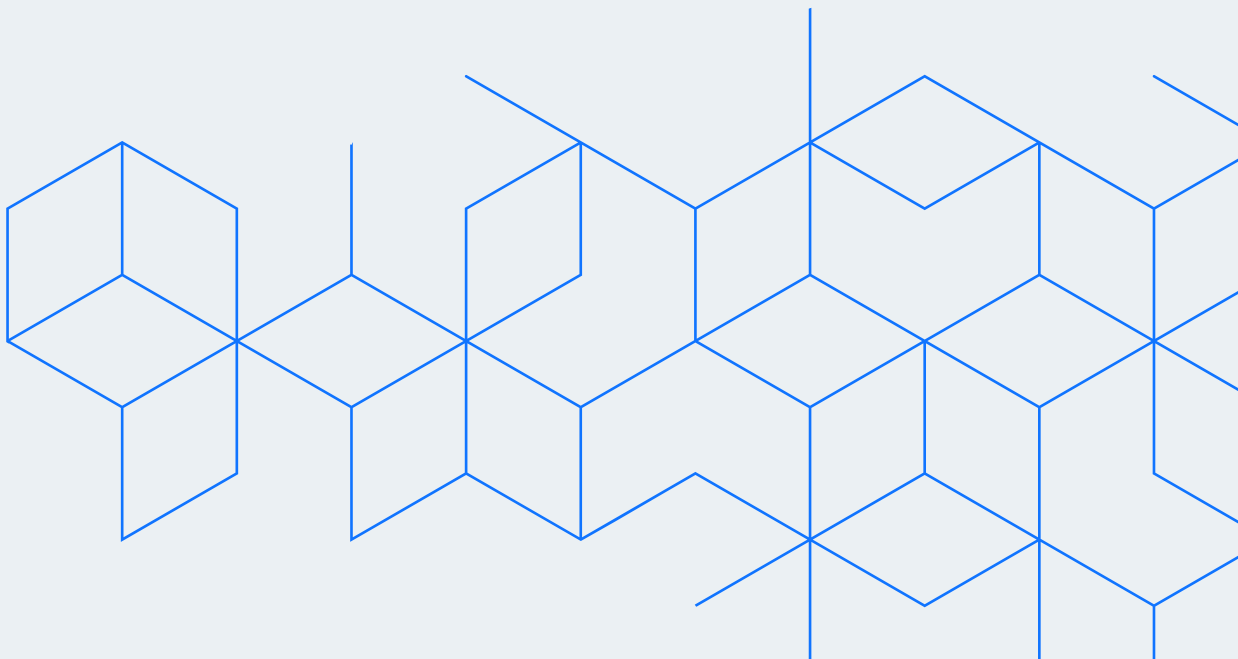
By setting these tolerances, the BIM Execution Plan provides clear guidelines for model development and quality control, ensuring that the final BIM model is both practical for coordination and accurate for construction use.

7.3 Clash / Clearance Detection

The BIM Execution Plan should provide clear guidelines for clash detection processes:

1. **Scope:** Specify which model elements must be included in clash testing. For example, structural elements, MEP systems, and architectural features.
2. **Software:** Identify the specific software to be used for clash detection, such as Navisworks or Solibri.
3. **Responsibilities:** Clearly define who is responsible for running clash tests, reviewing results, and resolving conflicts. This might include the Project BIM Manager and Discipline BIM Managers.
4. **Frequency:** Establish how often clash detection should be performed, such as weekly or before major project milestones.
5. **Reporting:** Outline the format and content of clash reports, including how to categorize and prioritize clashes.
6. **Resolution Process:** Describe the workflow for addressing and clearing identified clashes, including any required documentation or sign-offs.
7. **Clearance Requirements:** Specify minimum clearances required between different building systems, such as between ductwork and structural elements.

By detailing these aspects, the BIM Execution Plan ensures a consistent and effective approach to identifying and resolving spatial conflicts throughout the project.



8

Technical Requirements



8.0 Technical Requirements

8.1 Software

The BxP should specify the software requirements for the project. See example below:

The following releases are prescribed as the project standard. All teams must use the same release, and no team shall upgrade software without first consulting with the other groups.

Revit:	202X
AutoCAD:	202X
Navisworks:	202X

8.2 Hardware

The BxP can provide minimum hardware requirements. This can be useful for projects with many stakeholders, or stakeholders who do not have BIM capability.

See example below:

The following are the minimum system requirements for Revit as recommended by Autodesk:

- Microsoft Windows 8 64-Bit Enterprise or Professional Edition, Windows 7 64-bit Enterprise, Ultimate, Professional, or Home Premium edition
- Multicore Xeon or i-Series processor or AMD® equivalent with SSE2 technology (highest affordable CPU speed rating recommended)
- 16 GB RAM (Usually sufficient for a typical editing session for a single model up to approximately 300 MB on disk. This estimate is based on internal testing and customer reports. Individual models will vary in their use of computer resources and performance characteristics.)
- 32 GB free disk space
- 1,680 × 1,050 monitor with true color



BIM LOD Definitions



9.0 BIM Level Of Development Definition

The BIM Execution Plan should clearly define the Level of Development (LOD) requirements for the project. LOD describes the degree of detail and reliability of BIM elements at different project stages.

By clearly defining these LOD levels, the BIM Execution Plan ensures that all project stakeholders understand the expected level of detail at each project stage, promoting efficient modeling practices and clear communication throughout the project lifecycle.

This section provides general definitions for each LOD level:

9.1 LOD 100

LOD 100 represents conceptual modeling. Elements are shown as generic representations, conveying basic information about size, shape, and location. This level is typically used in early design stages for overall project planning and visualization.

9.2 LOD 200

LOD 200 adds more detail to elements, including approximate geometry, sizes, and locations. While not precise, this level provides enough information for schematic design and initial coordination between disciplines.

9.3 LOD 300

LOD 300 introduces precise geometry, dimensions, and locations. Elements at this level are suitable for generating accurate traditional construction documents. Material definitions and some basic performance data may be included.

9.4 LOD 350

LOD 350 builds on LOD 300 by adding information about interfaces with other building systems. This level is crucial for detailed coordination between disciplines and is often used in design development and early construction documentation phases.

9.5 LOD 400

LOD 400 includes precise geometry and detailed information for fabrication, assembly, and installation. This level is typically used for shop drawings and construction coordination.

9.6 LOD 500

LOD 500 represents the as-built condition, reflecting any changes made during construction. This level includes detailed information about all elements, suitable for facility management and future renovations.



10

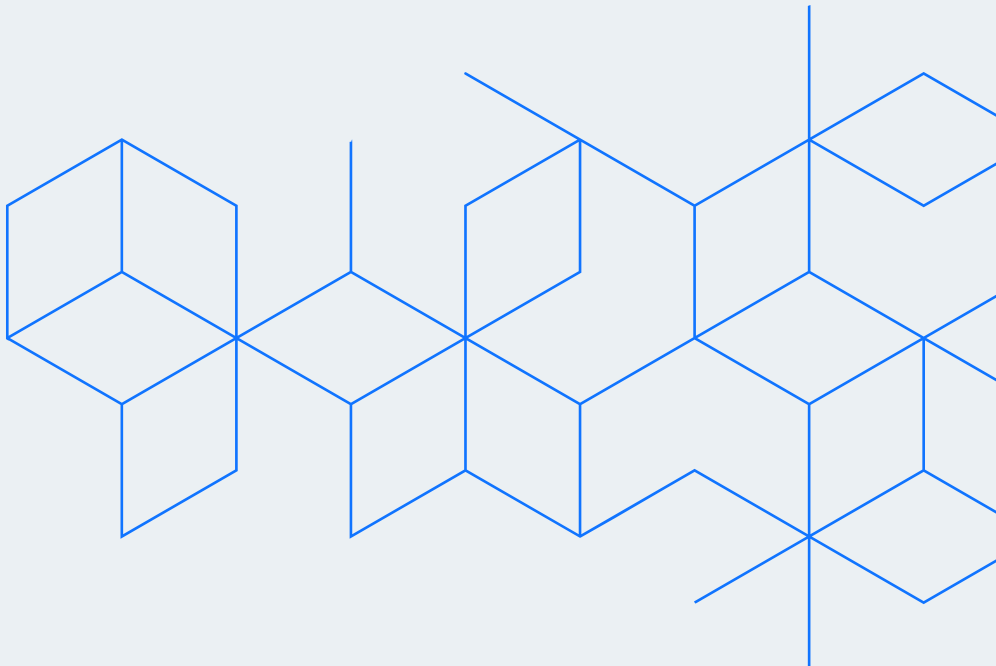
BIM LOD Table



10. BIM LOD Table

The BxP can include a table to record the LOD requirements at different project milestones. See example below:

Model Elements	Schematic Design			Design Development			Construction Drawings		
	200	300	400	200	300	400	200	300	400
Architecture									
Walls	X				X				X
Ceilings	X				X				X
Doors	X				X				X
Windows	X				X				X
Casework	X				X				X
Furniture	X				X				X
Specialty Equipment	X				X				X
MEP									
Ductwork	X				X				X
Mechanical Equipment	X				X				X
Pipe	X				X				X
Panelboards	X				X				X



About RevitGods

RevitGods is reimagining the future of building design and construction through innovative BIM management solutions. We're a team of architects and engineers who share a common goal: to increase the productivity and quality of the global building industry.

Established in 2018, we specialize in seamlessly integrating BIM technology into the workflows of design firms, contractors, and property developers. Our experience spans a wide range of projects, helping organizations adapt to and leverage BIM tools effectively.

At RevitGods, we're problem solvers at heart. We develop practical solutions that address real-world challenges in the building sector, combining deep technical knowledge with hands-on industry experience.

Our work aims to contribute to the ongoing advancement of BIM technology and its applications in the construction sector. We're committed to sharing knowledge and fostering innovation in building design and construction processes.

Need help managing an upcoming BIM project?

Submit an Inquiry at:

 www.revitgods.com

 contactus@revitgods.com

