



BIM EXECUTION PLAN

[PROJECT TITLE]

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Submitted Date: ## / ## / #####

Submitted By:

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**PLACE
PROJECT
IMAGE HERE**

Multnomah County Oregon

Facilities and Property Management Division

Building Data Management Center

Forward

The **BIM Execution Plan (BEP)** is developed to provide a master information/data management plan and assignment of roles and responsibilities for model creation and data integration at project initiation. The BEP aligns the project acquisition strategy needs and requirements with Multnomah County technical standards, team member skills, construction industry capability, and technology maturity. Through this process, the team members, County Project Management, and Building Data Management Center have jointly agreed on how, when, why, to what level, and for which project outcomes BIM will be used.

This document was developed based on the Multnomah County Revit Standards. The Multnomah County BIM Execution Plan Template is a modified version of the Multnomah County BEP template. The changes have been made to bring the template into alignment with the Multnomah County BIM Standards.

BIM PROJECT EXECUTION PLAN

FOR

[PROJECT TITLE]

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SECTION A: BIM PROJECT EXECUTION PLAN OVERVIEW

To successfully implement Building Information Modeling (BIM) on a project, the project team has developed this detailed BIM Project Execution Plan. The BIM Project Execution Plan defines uses for BIM on the project (e.g. design authoring, spatial data management, and design coordination), along with a detailed design of the process for executing BIM throughout the project lifecycle. The BIM produced during this project will be designed with the knowledge of its use for continued facilities management throughout the lifecycle of the building.

INSERT ADDITIONAL INFORMATION HERE IF APPLICABLE. FOR EXAMPLE: BIM MISSION STATEMENT. This is the location to provide additional BIM overview information. Additional detailed information can be included as an attachment to this document.

SECTION B: PROJECT INFORMATION

This section defines basic project reference information and project milestones.

1. Project Basics:

Project Owner:	
Project Name:	
Project Location and Address:	
Contract Type / Delivery Method:	
Brief Project Description:	[NUMBER OF FACILITIES, GENERAL SIZE, CONSTRUCTION BUDGET, TOTAL BUDGET, ETC]
Additional Project Information:	[UNIQUE BIM PROJECT CHARACTERISTICS AND REQUIREMENTS]

2. Project Numbers:

<i>Project Information</i>	<i>Number</i>
Multco Project Number	
Multco Building Number	
AE Project Numbers	

3. Project Schedule/Phases/Milestones:

Project Stage / Milestone		Estimated Start Date	Estimated Completion Date	Project Stakeholders Involved
Design Stage				
Design Model	Design Concept LOD 100-200			
	Design Development LOD 200-300			
	Construction Documents LOD 300			
Construction Stage				
As-built Model	Construction Delivery LOD 400			
	Project Close-Out LOD 500			

4. Project Management Systems

[Insert systems here]

SECTION C: KEY PROJECT CONTACTS AND ROLES

The team has identified who will be responsible for various aspects of the project based on delivering the BIM goals. The intent of the team is only to help clarify contractual obligations of the team members and stakeholders. No portion of this is intended to redefine or override any contractual obligations each party owes under their respective contracts.

1. BIM Roles and Responsibilities

This section is intended to cover the macro level major responsibilities of the team members.

Stakeholder	Scope of Work
Architect	Overall design lead responsible for overseeing the design through LOD300 and contributing to the LOD400 and LOD500 efforts. Establish and maintain the project's DMS through project close out.
Engineer	

2. Project Contacts

These are the primary management and technical contacts. These contacts should be used to seek immediate resolution of project coordination challenges.

Design Team

Role	Organization	Contact Name	Location	E-Mail	Phone
Lead Project Integrator					
Lead Q/C					
Multco PM					
BDMC Rep.					
Project Manager(s)					
Project Architect(s)					
BIM Manager(s)					
Consultant #1 Discipline Lead					
Consultant #2 Discipline Lead					
Other Project Roles					

Construction Team

Role	Organization	Contact Name	Location	E-Mail	Phone
Lead Project Integrator					
Lead Q/C					
Project Manager(s)					
BIM Manager(s)					
Discipline Leads					
Other Project Roles					

SECTION D: PROJECT GOALS/BIM USES

Major BIM Goals / Objectives:

The project's goals are defined below as well as what metric is being used to validate their success. After careful consideration of the BIM maturity of the team members tasked with their completion, the team believes that all goals listed are achievable.

The team believes that the success of all goals defined is a team effort and expects all stakeholders and project participants to positively contribute to their success.

Priority / Measurement	Goal / Achieved if	Primary Responsibility	
Priority High	Goal: Leverage Spatial Data Management to conduct digital code reviews and energy analysis.	Owner / Operator	Provide standards to the design team. Inform the team of historic energy data as well as local code related issues.
		Architect	Embed the SDM into the design model, and assist with embedding this data into the construction model. Will conduct reviews of energy models. Will lead digital code review meetings.
		Mechanical Consultant	Will use the SDM data from the Architect to programmatically derive the Space elements used for energy calculations. Will conduct digital energy analysis and track results through the design of the project.
		Builder / Contractor	Ensure that proper SDM data is included within the construction model.

Measurement	Achieved if: <ul style="list-style-type: none"> Energy consumption projections are reduced by >15% using the model. No substantial code violations surface during construction. 	Builder / Contractor	Track code compliance through construction. Report any code related issues to the team including costs to the project in both dollars and time.
		Architect	Perform root-cause analysis on any code issues that cost the project during construction and present the results to the team.
		MEP Contractors	Ensure that strategies for energy consumption reduction are taken from design to the real world. Report any deviations to the team.

1. Major BIM Goals / Objectives (Cont.):

Priority / Measurement	Goal / Achieved if	Primary Responsibility	
Priority High	Goal:		
Measurement	Achieved if: <ul style="list-style-type: none"> 		

2. BIM Uses

After careful consideration the team has decided on a number of BIM uses on the project. These uses are based on what stage of the project they are to be completely implemented.

Maturity	BIM Uses	LOD-100 (Pre-design)	LOD-200 (Schematic Design)	LOD-300 (Design Development)	LOD-350 (Construction Documents)	LOD-400 (Fabrication / Construction)	LOD-500 (Closeout)	LOD-500 (Operation & Management)
Visualization	Programming	X	X					
	Site Analysis	X	X					
	Design Reviews		X	X	X			
	Phase Planning (for presentations)	X	X	X	X			
Documentation	Existing Conditions Modeling	X	X	X	X	X	X	X
	Design Authoring		X	X	X			
	Cost Estimation (Quantity takeoff)				X			
	Record Modeling					X	X	
	COBie							
	BIM Requirements for FM							
Model-Based Analysis	Space Management and Tracking		X	X	X			X
	Engineering Analysis		X	X	X			
	a. Energy Analysis		X	X	X			
	b. Structural Analysis		X	X	X			
	c. Lighting Analysis			X	X			
	d. Mechanical Analysis			X	X			
	e. Other Engineering Analysis		X	X	X			
	Sustainability (LEED) Evaluation			X	X			
	Disaster Planning		X	X	X			X
	Cost Estimation (Estimating)	X	X	X	X	X	X	X
	Phase Planning (4D modeling)				X	X		
Site Utilization Planning				X	X			
Integrated Analyses	3D Coordination				X	X		
	Construction System Design					X		
	3D Control and Planning (Digital Layout)					X		
	Digital Fabrication (Supply chain management)							

	Building (Preventative) Maintenance Scheduling							X
	Building System Analysis							X
	Asset Management							X
Automation & Optimization	Code Validation				X			
	Digital Fabrication (Off-site fabrication)					X		

SECTION E: COLLABORATION PROCEDURES

1. Collaboration Strategy:

Describe how the project team will collaborate. Include items such as communication methods, document management and transfer, record storage and performance incentives in timely receipt and quality of deliverables, etc.

2. Meeting Procedures:

The following are examples of meetings that should be considered.

Meeting Type	Project Stage	Frequency	Participants	Location
BIM requirements kick-off				
BIM execution plan demonstration				
Design coordination				
Construction over-the-shoulder progress reviews				
Any other BIM meetings that occurs with multiple parties				

3. Model Delivery Schedule of Information Exchange for Submission and Approval:

Document the information exchanges and file transfers that will occur on the project.

Information Exchange	File Sender	File Receiver	One-Time Or Frequency	Due Or Start Date	Model File	Model Software	Native File Type	File Exchange Type

4. Electronic Communication Procedures:

(Note: File Naming and Folder Structure will be discussed in Section H: Model Structure).

The following document management issues should be resolved and a procedure should be defined for each: Permissions / access, File Locations, FTP Site Location(s), File Transfer Protocol, File / Folder Maintenance, etc.

File Location	File Structure / Name	File Type	Password Protect	File Maintainer	Updated

5. VDC Training:

If VDC training will be required, identify the schedule, attendees, instructor.

6. Integration Management

Identify tools and techniques that will be used to encourage team collaboration and BIM sharing including how Integration Sessions will be used to coordinate, share, and update model data. In this section the team should agree to model integration methodology: set-up, objectives, facilitation, stakeholder, roles, frequency, location, resolution. Refer to the Websites section: Integration Reviews

SECTION F: QUALITY CONTROL

1. Overall Strategy for Quality Control:

Describe the strategy to control the quality of the model.

2. Quality Control Checks:

The following checks should be performed to assure quality.

Checks	Definition	Responsible Party	Software Program(s)	Frequency
VISUAL CHECK	Verify that there are no unintended model components and the design intent has been followed			
INTERFERENCE CHECK	Detect problems in the model where two building components are clashing including soft and hard			
STANDARDS CHECK	Verify that the BIM and AEC CAD Standard have been followed (fonts, dimensions, line styles, levels/layers, model partitioning, common coordinate system and model origin, and any required object enablers)			
BIM GUIDE CHECK	Verify that the Multnomah County Revit Standards BIM Guides have been followed (Spatial Program Validation, Circulation and Security Validation, etc.)			
ENERGY STRATEGY CHECK	Verify that energy and modeling strategies (including how energy savings predictions will be documented so that it can be matched against actual energy savings). This includes creating the energy baseline.			
4D SCHEDULING CHECK	Describe the utilization of 4D scheduling and construction sequencing technology			
MODEL INTEGRITY CHECKS	Describe the QC validation process used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements and the reporting process on non-compliant elements and corrective action plans			

3. Required Technical Reviews:

Request for technical review should be submitted to BDMC at the end of each of the following phases:

- Design Development (DD) Phase
- Construction Documents (CD) Phase
- Construction Delivery Phase

Projects will automatically be reviewed at closeout to ensure all issues from previous reviews have been addressed.

SECTION G: TECHNOLOGICAL INFRASTRUCTURE NEEDS

1. Software:

List software used to deliver BIM. (On larger projects the team should consider completing a more comprehensive Data Format Matrix).

BIM Use	Discipline (if applicable)	Software	Version

2. Modeling Content and Reference Information

Identify items such as families, workspaces, and databases.

BIM USE	DISCIPLINE (if applicable)	MODELING CONTENT / REFERENCE INFORMATION	VERSION
DESIGN AUTHORING	ARCH	XYZ APP FAMILIES	VER. X.X. (YEAR)
ESTIMATING	CONTRACTOR	PROPRIETARY DATABASE	VER. X.X (YEAR)

SECTION H: MODEL STRUCTURE

1. File Naming Structure:

The team projects that the following master files will be generated during the project. All names of master files, and all other data, will conform to the [Naming Standards](#).

FILE NAMES	
ARCHITECTURAL MODEL	ARCH-
CIVIL MODEL	CIVIL-
MECHANICAL MODEL	MECH-
PLUMBING MODEL	PLUMB-
ELECTRICAL MODEL	ELEC-
STRUCTURAL MODEL	STRUCT-
ENERGY MODEL	ENERGY-
CONSTRUCTION MODEL	CONST-
COORDINATION MODEL	COORD-

2. Model Structure:

Describe and diagram how the Model is separated, e.g., by building, by floors, by zone, by areas, and/or discipline. Ensure that this structure conforms to Multco Revit Standards. In particular ensure that it conforms to; File Structure and Organization, Grouping and Relationships, the Parametric Components standards.

3. Measurement and Coordinate Systems:

Describe the measurement system (Imperial or Metric) and coordinate system (geo-referenced) used. Ensure that this conforms to Multco Revit Standards. In particular ensure that it conforms to the File Structure and Organization standard.

4. BIM and CAD Standards:

Identify items such as the BIM and CAD standards, content reference information, and the version of IFC, etc.

Standard	Version	BIM Uses Applicable	Organizations Applicable
Multco Revit Standard 2021	1.0	All	All project participants
Multco CAD Standard 2019	1.0	2D CAD Exports	All project participants

5. Model Progression Matrix

The Multnomah County [Model Progression Matrix](#)(Coming soon) is attached to this document. This document is based on the AIA E202 document.

SECTION I: PROJECT DELIVERABLES

Multco Revit Standards require very specific BIM deliverables. The team should familiarize themselves with these requirements before any BIM work is commenced.

Item covered by the Standard Include:

- Data requirements
- Native format
- Minimum data attributes
- Specific model structure requirements
- Specific use of URLs within the BIM data

These standards must be followed by all team members.

Project Stage / Milestone		Description of Delivery	Estimated Delivery Date	Project Stakeholders Involved
Design Stage				
Design Model	Design concept phase LOD 100-200			

	Design development phase LOD 200-300			
	Construction Documents Phase LOD 300 Complete			
Construction Stage				
As-built Model	Construction delivery Phase LOD 400 Complete			
	Project close-out phase LOD 500 Complete			

In this section, list the BIM deliverables which are in excess of the [Multnomah County Submittal Standards](#) for the project and the format in which the information will be delivered.

SECTION J: OPTIONAL ATTACHMENTS

Depending on the size and BIM needs of each project various optional attachments may be included as part of the BEP. Many different documents exist within the industry and the team is encouraged to seek out and use those documents which enhance the projects BEP.

1. BIM USE SELECTION WORKSHEET

2. BIM PROCESS DESIGN MAP(S)

Large, complex projects may benefit from a team developed process map to clarify BIM workflows. If a process map has been developed, include as Attachment.

3. INFORMATION EXCHANGE WORKSHEET(S)

Large, complex projects may benefit from a team developed, spreadsheet oriented, element by element information exchange. If such a spreadsheet has been developed, include as Attachment.

4. MODEL DEFINITION WORKSHEET

5. MODELING PROTOCOL EXHIBIT [FROM SECTION G]

6. BIM AND FACILITY DATA REQUIREMENTS [FROM SECTION H]

Signature Page

Team members agree to use BIM to enable improved workflows for subject project. Model data will be authored, maintained, shared, and documented as outlined in this BIM Project Execution Plan.

Team Member	Company	Name	Signature	Date
Owner	Multnomah County			
Project Manager				
BDMC Rep.				
Property Manager				
Facility Manager				
Architect				
Engr. Consultant				
Modify list as required				