

# **UMass Chan Medical School**

## **Office of Facilities**

### **BIM Execution Plan**

# **CMAR**

Design Technology Group

March 2026

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Project Name Here

*Month, Year*

*PROJECT IMAGE HERE*



**NOTE TO THE DESIGN & CONSTRUCTION TEAMS:** This BEP template is a guide for you to update to your project BIM specific requirements. This document should be reviewed with your Attorney to ensure the language here and your firms Digital Data Agreements and/or contracts do not contradict each other. This document is meant to outline the details of the 3D modelled elements vs the 2D data needs delivered for the project. You may or may not need all sections, please update accordingly.

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## OVERVIEW

By applying BIM technologies, the Owner intends to support informed decision-making during both design and construction. Under a Construction Manager at Risk (CMAR) delivery method, BIM is used to facilitate design coordination, constructability review, and construction-phase coordination while maintaining clear delineation of responsibilities among project participants.

This BIM Execution Plan establishes minimum BIM requirements and protocols applicable to all parties and does not modify contractual obligations or assign responsibility for construction means, methods, or sequencing.

### OWNERSHIP OF MODELS

Ownership of models is governed by contracts between each party.

BIM models produced by the Design Team represent design intent only. Construction, coordination, and fabrication models developed by the Construction Manager or Trade Contractors are separate instruments of service and shall not be considered modifications to the Design Team's models.

Use of any model is limited to the purposes expressly identified in this BIM Execution Plan and the Contract Documents.

Review the Active EFTA or contract for further clarification of Ownership and responsibilities.

### PROJECT INFORMATION

Owner\Client:

Project Name & Abbreviation:

Project Address:

Brief Project Description:

Discipline/Trade	Company	Contact(s)	Title	Email	Phone
Owner					
Architecture					
Structure					
MEPFP					

Civil					
CM					

**BIM EXECUTION PLAN SCHEDULE**

<b>BIM Execution Plan Development</b>			
	<b>Date</b>	<b>Description</b>	<b>Required Participants</b>
Development of Draft BIM Execution Plan			
Distribute Draft BIM Execution Plan			
BIM Execution Plan Review			
Finalize BIM Execution Plan			

## THE BUILDING MODELS

### MODEL MANAGERS

Under a Construction Manager at Risk (CMAR) delivery method, BIM roles are defined as follows:

- The Architect and Design Consultants retain authority over their respective design models and design intent.
- The Construction Manager is responsible for managing the BIM coordination process during construction, including facilitation of coordination meetings and issue tracking.
- Trade Contractors may author discipline-specific construction or coordination models for constructability review, coordination, and installation planning.

Model authorship and coordination responsibilities do not alter contractual roles or professional responsibilities.

The model manager from each party has the follow, but not limited to, responsibilities:

- Transferring modelling content from one party to another at specified dates
- Validating the level of detail and controls as defined for each project phase
- Validating modelling content during each project phase
- Participating in design review and model coordination sessions
- Communicating any modelling issues to cross-company teams
- Assuring model naming conventions are being used accurately
- Managing version control
- Creating all important dated backups

Company Name	Model Manager Name	Contact Information

There will be regular BIM meetings with the model managers.

	<b>Required Participants</b>	<b>Frequency</b>
BIM Kick Off	All Parties	
BIM Execution Review		
Internal Meetings		
Model Manager Meetings	All Parties	

## **FILE FORMAT REQUIREMENTS**

Electronic Files will be accepted in the following

<b>Software</b>	<b>File Extension</b>	<b>Version/Year</b>
Revit	RVT	2025
AutoCAD	Dwg	2025
Autodesk	Dwf	
Open	IFC	
Navisworks	Nwd	
PDF	PDF	
Excel\COBIE Data	xls	

## **FREQUENCY OF ISSUE**

Model exchanges shall occur at design milestones and at additional intervals as required to support coordination and construction-phase activities.

Files are to be shared:

NA as hosted on BIM 360 or ACC or PROCORE or PMWeb:

## **METHOD OF TRANSFER**

File Transfer Method:

Contact:

File Exchange Frequency: See BIM Schedule

## MODEL/DATA EXCHANGE MATRIX

The following highlights the electronic file various formats which each consultant will need as part of the BIM interoperability process. This matrix indicates the files which each consultant will issue as well as the file formats they need to receive

(✓) required to supply to indicated party

Originator	File Type	Receiver								
		Arch	Struct	Mech	Elec	Plumb	FP	Civil	CM	Owner
<b>Architect</b>	RVT	N/A								
	2D dwg	N/A								
	3D dwg	N/A								
	NWD	N/A								
	IFC									
	XLS									
<b>Structural</b>	RVT		N/A							
	2D dwg		N/A							
	3D dwg		N/A							
	NWD		N/A							
	IFC		N/A							
	XLS		N/A							
<b>Mech</b>	RVT			N/A						
	2D dwg			N/A						
	3D dwg			N/A						
	IFC			N/A						
	NWD			N/A						
	XLS			N/A						
<b>Elec</b>	RVT				N/A					
	2D dwg				N/A					

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Originator	File Type	Receiver								
		Arch	Struct	Mech	Elec	Plumb	FP	Civil	CM	Owner
	3D dwg				N/A					
	IFC				N/A					
	NWD				N/A					
	XLS				N/A					
Plumb	RVT					N/A				
	2D dwg					N/A				
	3D dwg					N/A				
	IFC					N/A				
	NWD					N/A				
	XLS					N/A				
FP	RVT						N/A			
	2D dwg						N/A			
	3D dwg						N/A			
	IFC						N/A			
	NWD						N/A			
	XLS						N/A			
Civil	RVT							N/A		
	2D dwg							N/A		
	3D dwg							N/A		
	IFC							N/A		
	NWD							N/A		
	XLS							N/A		
CM	RVT								N/A	
	2D dwg								N/A	
	3D dwg								N/A	
	IFC								N/A	
	NWD								N/A	
	XLS								N/A	
OTHER	PDF									

## **PREPARATION OF REVIT FILES BEFORE EXCHANGE**

Prior to each file exchange each group must perform the following tasks.

Purge Unused Elements from each Model

Delete Unused (and unnecessary views)

Include in the transfer any AutoCAD backgrounds used.

**NOTE FOR USER:** Work shared files do not have to be detached before sending, however it is advised to detach for any archive needs at sharing dates.

## FILE NAMING CONVENTIONS AND MODEL FILE LIST

Model file naming needs to be established between all parties participating within the BIM collaborative effort. All files used are noted below.

**NOTE FOR USER:** (Design Team to edit this if Owner Request /Project Team request is different.)

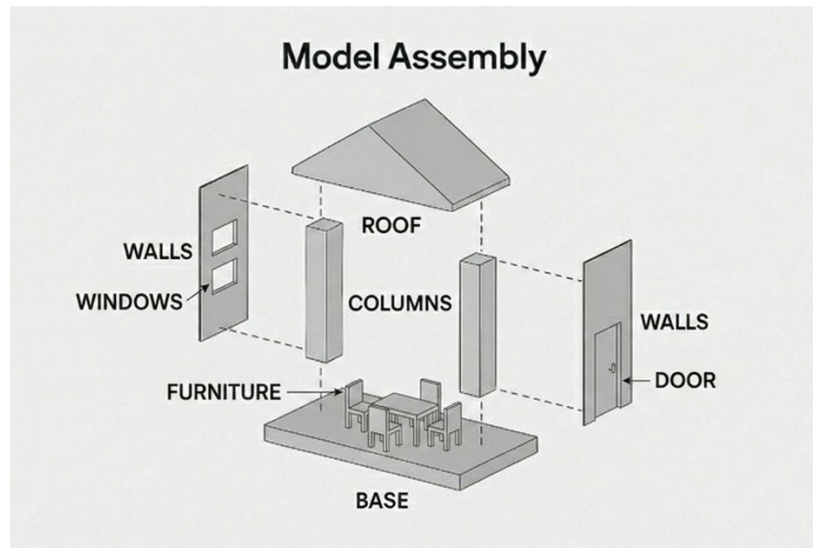
**NOTE FOR USER:** Project ID – Building ID – Discipline – File Types – Revit Build

**NOTE FOR USER:** Example: 00000-Building Tower-AR-FO-R23

Discipline\Trade & Abbreviation	Model(s)	File Name(s)	Software
Site\Landscape (Site)			
Architecture (Arch)			
Structure (Structure)			
MEPFP (MEPFP)			
CM or BIM Consultant			
Mechanical (HVAC)			
Electrical (Elec)			
Plumbing (Plumb)			
Fire Protection (FP)			
Others as required			

## MODEL ASSEMBLY

The following diagram indicates the model assembly.



*Note: Diagram will be updated if any changes are to be made.*

## UNITS AND PRECISION

Models should include all appropriate dimensions as needed for design intent, analysis and construction. Models shall use consistent units and measurements across the project.

**Default Units:** Imperial (Feet and fractional inches)

**Scale:** 1 unit = 1 foot

**Model Precision:** 1/256"

**Dimensions:** Feet and fractional inches rounded to 1/8".

**Angles:** Decimal degrees rounded to 2 decimal points.

**Area:** Square feet rounded to 0 decimal points.

**Volume:** Cubic feet rounded 1 decimal point.

2D input/output File Accuracy:

- **Site Layout Drawings:** Coordinate system accuracy to 3 decimal places
- **Elements, Details, Sections, Elevations, Building Outlines:** Accuracy to 0 decimal places.

## **MODEL BACKUPS AND ARCHIVES**

Each designer, consultant, trade or sub submitting models is required to make archives \ backups of each file at each milestone and maintain those archives for the duration of the project. Milestones, to clarify, are dates of delivery to client only. Consultants are free to archive at other times as they deem fit.

Model Backups are to be saved to this location: See BIM Standard for clarification.

If cloud-based application (BIM 360, ACC, etc) is being used, snapshots are taken automatically, the designated BIM Project Lead can coordinate rolling back to a previous version of files if needed.

## **MODEL LEVEL OF DEVELOPMENT AND SCOPE**

### **LEVEL OF DEVELOPMENT DEFINITIONS**

At each project milestone identified here, each participant is required to ensure that their model contains all the required building elements at the appropriate level of development as specified herein.

Level of Development (LOD) requirements may be progressive and system-specific to support coordination and constructability review.

Increases in LOD resulting from Trade Contractor modeling efforts do not transfer design responsibility to the Design Team.

Level of Development Explanations: (NEXT PAGE)

Level of Development Explanations:


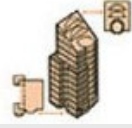




LOD 100	LOD 200	LOD 300	LOD 350	LOD 400	LOD 500
					
<p>The Model Element may be <b>graphically represented</b> in the Model with a <b>symbol or other generic representation</b>, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e. cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements</p>	<p>The Model Element is graphically represented within the Model as a <b>generic system, object, or assembly</b> with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.</p>	<p>The Model Element is graphically represented within the Model as a <b>specific system, object or assembly</b> in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.</p>	<p>The Model Element is graphically represented within the Model as a specific system, object, or assembly in terms of quantity, size, shape, location, orientation, and <b>interfaces</b> with other building systems. Non-graphic information may also be attached to the Model Element.</p>	<p>The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with <b>detailing, fabrication, assembly, and installation information</b>. Non-graphic information may also be attached to the Model Element</p>	<p>The Model Element is a <b>field verified representation</b> in terms of size, shape, location, quantity, and orientation. Non-graphic information may also be attached to the Model Elements.</p>
<p><b>Interpretation:</b> LOD 100 elements are <b>not geometric</b> representations. Examples are information attached to other model elements or symbols showing the existence of a component but not its shape, size, or precise location. Any information derived from LOD 100 elements must be considered approximate.</p>	<p><b>Interpretation:</b> At this LOD elements are generic placeholders. They may be recognizable as the components they represent, or they may be volumes for space reservation. Any information derived from LOD 200 elements must be considered approximate.</p>	<p><b>Interpretation:</b> The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs. The project origin is defined and the element is located accurately with respect to the project origin.</p>	<p><b>Interpretation:</b> Parts necessary for coordination of the element with nearby or attached elements are modeled. These parts will include such items as <b>supports and connections</b>. The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs.</p>	<p><b>Interpretation:</b> An LOD 400 element is modeled at sufficient detail and accuracy for fabrication of the represented component. The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs.</p>	<p><b>Interpretation:</b> Since LOD 500 relates to field verification and is not an indication of progression to a higher level of model element geometry or non-graphic information, this Specification does not define or illustrate it.</p>
<b>DESIGN</b>			<b>CONSTRUCTION</b>		
<p>Refer to BIM Forum Level of Development Specification for more detailed description of element specific LOD  <a href="https://bimforum.org/resource/lo-d-level-of-development-lo-d-specification/">https://bimforum.org/resource/lo-d-level-of-development-lo-d-specification/</a></p>					

Figure 1 - BIM Forum LOD Specification 2020

## **LOD CLARIFICATION FOR REVIT**

**Approximate (LOD 200)** – Building elements are of approximate size and placement (e.g., furniture)

**Simplified (LOD 250)** – Building elements are of correct overall size, approximated shape, and correctly placed. (e.g., Rectangle in place of an I-Beam)

**Accurate (LOD 300)** - Building elements of correct overall size, shape and placement. Includes “primary” sub-components such as window sashes or interior mullions.

**Detailed (LOD 325)** – Building elements are of correct overall size, shape and placement along with detailing including inner layers of objects or external details (e.g., Wall with inner layers, window casings, muntins, and door casings.)

## MODEL LEVEL OF DEVELOPMENT AND SCOPE MATRIX

Primary firm to provide LOD matrix. See appendix excel spreadsheet LOD.

### DESIGN DOCUMENTATION MODEL REQUIREMENTS

#### Coordinating Common\Shared Design Elements

Below is a list of design elements which need to be coordinated across disciplines during design. This coordination typically results in elements being shown in more than one document set\Revit file. There are 3 approaches for handling this.

Users to modify to project specific needs.

Element Type	Originator	Disciplines
Levels	Architectural	Entire Team
Column Grid Lines	Architectural – Structural	Entire Team
Structural Steel	Structural	Architectural - Structural
Structural Floors	Structural	Architectural - Structural
Foundation Walls\Footings	Architectural – Structural	Architectural - Structural
Lights, Power, Tel-Data, Communications		Arch - Elec
Diffusers		Arch - Mech
Plumbing Fixtures		Arch - Plumb

The list below identifies “base plan and rcp” items which all disciplines typically display on their documentation. The list indicates who the responsible party is for including\locating the item in their model, such that other trades can link and display those items.

Required Building Elements	End of DD		60% CD		90% CD	
	Responsible Party	LOD	Responsible Party	LOD	Responsible Party	LOD
Foundation Walls & Footings	Structure		Structure		Structure	
Exterior Walls & Interior Partitions	Arch		Arch		Arch	
Doors, Windows, Openings	Arch		Arch		Arch	
Structural Floor	Structure		Structure		Structure	
Ceilings	Arch		Arch		Arch	
Roofs	Arch		Arch		Arch	
Room Names and Numbers	Arch		Arch		Arch	
Light Fixtures	Elec		Elec		Elec	
Diffusers	Mechanical		Mechanical		Mechanical	
Plumbing Fixtures	Arch		Arch		Arch	

## COORDINATION

**NOTE TO USER:** Remove this section entirely if not doing clash detection.

Given that one of the goals identified here is to improve coordination of systems it is the responsibility of the MEPFP design team to ensure that the Revit model(s) is free of clashes between its own work. The architect and structural engineer recognize that in order for coordination to occur that they must provide updated designs to MEPFP in a timely fashion.

It is also noted that clash free coordination is only required at major milestones. This is not a requirement for regular progress updates between milestones.

**SAMPLE FOR USER:**

Approach	Pros	Cons
Separate elements reside in each file which must be “manually” coordinated.	Each discipline has full control over graphics at any time.	Must copy/recreate elements from other file. Must manually coordinate/check for changes.
One file is a master which consultant links in.	No redrawing required	Must rely on consultant for changes which often results in delay.
Separate element in each file coordinated with Copy\Monitor tool.	No redrawing and automatic updates.	New elements are not automatically copied/monitored.

It is suggested that the Architect sets a “master” file which shall contain the shared coordinates, levels and grids which is shared to all consultants to copy/monitor.

### CLASH DETECTION MODEL REQUIREMENTS

#### Design Stage

**NOTE FOR USER:** Two stages provided under this heading; design stage, construction stage if the project needs defined separation of the two.

**NOTE FOR USER:** The purpose of performing Clash detection at the end of DD is to determine if “primary” routing of mechanical routing works with planned architectural and structural elements. Models used for testing are produced by architects and engineers. Major architectural, structural and mechanical elements need to be modeled to ensure planned routing is plausible. Clash tests will be performed at end of DD, 60% CD and 90% CD.

\*It is the responsibility of the MEPFP design team to remove clashes between the Revit model(s) of its own work which would materially affect the constructability of the design. The architect and structural engineer recognize that for coordination to occur they must provide updated designs to MEPFP in a timely fashion. It is also noted that detailed clash removal coordination is only required at major milestones. This is not a requirement for regular progress updates between milestones.

Required Building Elements	Responsible Party	LOD
Column Grid Lines	Arch	
Floor Level Lines	Arch	
Foundation Walls & Footings	Arch or Structure	
Exterior Walls & Interior Partitions	Arch	
Structural Floors	Arch or Structure	
Structural Beams, Joists & Bracing	Structure	
Ceilings	Arch	
Large Mechanical Equipment	Mech	
Main Ductwork	Mech	
Large Electrical Equipment	Elec	
Large Conduit Runs	Elec	
Large FP Equipment	FP	
Large Plumbing Equipment and Piping	Plumb	

### Construction Stage

IMPORTANT: During construction-stage coordination, Trade Contractors are responsible for the accuracy and completeness of their respective coordination models. The Construction Manager is responsible for managing the coordination process, including model integration, clash detection workflows, and issue resolution tracking.

The Design Team's role during construction-stage coordination is limited to clarification of design intent and response to formal Requests for Information (RFIs).

Required Building Elements	Responsible Party	LOD
Column Grid Lines	Arch	
Floor Level Lines	Arch	
Foundation Walls & Footings	Arch or Structure	
Exterior Walls & Interior Partitions	Arch	
Structural Floors	Arch or Structure	
Structural Beams, Joists & Bracing	Structure	
Ceilings	Arch	
Large Mechanical Equipment	Mech	
Main Ductwork	Mech	
Large Electrical Equipment	Elec	
Large Conduit Runs	Elec	
Large FP Equipment	FP	
Large Plumbing Equipment and Piping	Plumb	

### **Clash Test Sequence**

- Structure Vs. Architectural
- Structure Vs. HVAC
- Structure Vs. Gravity Piping
- Plumbing
- Fire Protection
- Electrical
- Ceiling Checks
- Small Diameter Piping (optional)
- Clearance\Access Zones (optional)

## FM MODEL REQUIREMENTS

**NOTE FOR USER:** (IMPORTANT: Design Team to ensure client has\does not have BIM FM Model needs.

**NOTE FOR USER:** Only if needed and the financial/staffing impact of this effort is understood by the Principal-in-Charge, otherwise revise or remove this section as applicable).

The Construction Manager may assist the Owner in coordinating collection and validation of record model data when required. Review the Active EFTA or contract for further clarification of roles and responsibilities.

### RECORD MODELS

Refer to BIM STANDARD.

Required Building Elements	Abbreviation	Notes\Additional Requirements
<b>Misc.</b>		
Column Grid Lines		
Floor Level Lines		
Room Names & Numbers		
<b>Structural</b>		
Foundation Walls & Footings		
Exterior Walls & Interior Partitions		
Structural Floors		
Structural Beams, Joists & Bracing		
<b>Architectural</b>		
Exterior Walls		
Interior Partitions		
Doors	DOOR	
Windows	WIND	
Exterior Glazing Systems	GLAZ	
Flooring	FLOR	
Ceilings	CLG	
Roofs	ROOF	
Built In Casework	CASE	
Stairs	STAIR	
Railings	RAIL	
Elevators\Escalators	ELEV	
Toilet Room Accessories		
"Office" Equipment	OFFEQ	
Furniture	FURN	

Required Building Elements	Abbreviation	Notes\Additional Requirements
Fire Protection		
Large Equipment		
Risers		
Mains		
Branches & Sprinkler Heads		
Safety		
Fire Alarm System		
Fire Extinguisher Cabinets		
Food Service Equipment		
Appliances and Equipment		
Misc. Equipment		
Pallet Lift		
Item	Abbreviation	Notes\Additional Requirements
<b>Electrical</b>		
Outlets		
Telecom\Data		
Transformer		
Switchboard\Switchgear		
Panelboards		
Cable Tray		
Conduit		
Lights		
Lights - Emergency		
Lights - Exit		
Lighting – Sports Field		
Lighting Control System		
Disconnect Switches		
Generator		
Switches (Automatic or Manual)		
Inverters		
Timeclocks		
Fire Alarm System		
Public Safety Signal Booster System (BDA)		
Scoreboards		
Zero Sequence Harmonic Filters		
Surge Protection Devices		
Destratification Fans		
Item	Abbreviation	Notes\Additional Requirements
<b>Mechanical</b>		
Air Handling Units		

Required Building Elements	Abbreviation	Notes\Additional Requirements
Boilers		
Cabinet Unit Heaters		
Ceiling Mounted Induction Units (Active Chilled Beam)		
Chiller (Air Cooled)		
Chilled Beams		
Condensate Pump		
Condensing Units		
Condensing Unit – Walk in Freezer		
Convectors		
Ductless Split fancoil system		
Duct Heater		
Electric Unit Heater		
Energy Recovery Units		
Expansion Tank		
Fans (Centrifugal)		
Fans (Destratification)		
Fan (Fume Hood Exhaust)		
Fans (Roof)		
Fancoil Units		
Fin Tube Radiator		
Gravity Ventilators		
Hot Water Reheat coils		
Make Up Air Unit (Indirect Gas Fired) Pumps		
Pumps		
Rooftop Air Handling Units		
Strainers		
Terminal Boxes		
Unit Heaters		
Valves		
Variable Frequency Drives		
Water Flow Measuring Devices		
Item	Abbreviations	Notes\Additional Requirements
<b>Plumbing</b>		
Plumbing Fixtures (toilets, sinks, showers, fountains, etc.)		
Sanitary Piping		
Access Panel and Valve Locations		
Storm Drainage Piping		
Roof Drain Locations		
Acid Neutralization System		
Cleanouts		
Drinking Fountains		

Required Building Elements	Abbreviation	Notes\Additional Requirements
Drinking Fountain Refrigerated		
Expansion Tank		
Traps		
Shock Absorbers		
Vacuum Breakers		
Wall Hydrants, Roof Hydrants and hose bibbs		
Gas Solenoid Valves		
Interior Grease Interceptors		
Backflow Preventers		
Gas Fired Hot Water Heating System		
Emergency Shower Electric Hot Water System		
Gas Hot Water Heating System		
Domestic Water Tempering System		
Emergency Shower Water Tempering Valve		
Hot Water Circulators		
Recycled Water System		
Exterior Grease Interceptor		
Compressed Air Systems		
Emergency Shower System Solenoid Valve/Time Clock		
Industrial Waste Holding Tank		
Recycled Water System Back-up Pump		
Vacuum System Pump		
Sanitary Lift Station		
Water Heater - Booster		
Water Heater - Indirect		
Water Heater - Instantaneous		
Water Filter		

## DATA REQUIREMENTS FOR ALL ELEMENTS

**NOTE TO DESIGN TEAM:** What does Owner require? Remove if N/A, as below is a suggested typical FM requirement.

The following information is required for each piece of equipment that needs to be maintained.

Item	Description	Required in Model
BIM Identifier	Unique Revit ID	Yes (auto generated)
Asset Tag	Unique Identifier in CAFM System - Assigned upon insert into CAFM	No
Classification\System Type	HVAC, Plumbing, Electrical, Safety, Food Service	Yes
Item Description	Air Compressor, Condenser, Backflow Preventer, CUH, etc.	Yes
RFID or Bar Code		No
Manufacturer		Yes
Model		Yes
Serial Number		Yes
Installation Year		NO
Install Location (Building-Level-Room)	(pulled from Arch room or MEP space?)	Yes
O&M Manual	PDF link or website URL to manual	NO
Warranty Information		NO
Sub-Contractor	Contact information for provider\installer	NO

## ASSET TAG FORMAT

Item Abbreviation-Floor-Number

## REVIT SPECIFIC REQUIREMENTS

### LANGUAGE

If a different language is being used to develop the model, please notify Architect to keep record for Owner. If a different language is being used, it is highly recommended to use the Revit language pack; Spanish, French, etc. and not use the English version and type in Spanish/French. Determine the best method of translation and document standard language.

### WORKSHARED VS. NON-WORKSHARED FILES

Files do not have to be set up as workshared. (i.e., Central files do not have to be created.) Each consultant is free to decide if they want to set up the project to allow more than one person to work on it at a time. If consultant decides to use work-shared files they should follow workset naming conventions outlined here.

### WORKSETS

- LINK-CAD – All Linked or imported CAD files.
- LINK-REVIT – Can be separated by file type if needed; LINK-REVIT-ST

#### 00-Shared Levels and Grids

#### 00-Reference Planes & Scope Boxes - (Optional)

#### 01-Civil

**02-Structure** – All building structure including structural walls, footings and foundations, columns, beams, braces, and structural floors

**03-Architecture** – All Architectural and Interiors – (combination of Core\Shell and Fit Out)

- 03.1 - Arch Existing
- 03.2 - Arch Structure – Structural walls, footings, foundations, columns, beams, braces and structural floors.
- 03.3 - Arch Core Shell – All building enclosure and building core elements. Includes exterior walls, doors and windows. Includes any multi-story walls around stairs, elevators or shafts. Includes doors\openings in core.
- 03.4 - Arch Fit Out (Interiors)– All non-structural, non-Core\Shell elements including walls (partitions), doors, windows, openings, ceilings, light fixtures, plumbing fixtures, power\el data, furniture and equipment
- 03.5 – Additional as needed (i.e. finish floors)

#### 04-Mechanical

- 04.1-Existing Mechanical
- 04.2-Ductwork & Equipment
- 04.3-Mechanical Piping

#### 05-Electrical

- 05.1-Existing Electrical
- 05.2-Lighting

- 05.3-Power
- 05.4-Communications

## **06-Plumbing**

- 06.1-Existing Plumbing
- 06.2-Sanitary & Vent
- 06.3-Piping
- 06.4-Gases

## **07-Fire Protection**

- 08-Others as needed

## **ORIGIN POINT/SITE COORDINATION**

(If site coordinates are not to be used, Revit shared project base point and survey point are to be located at a common building grid intersection)

A Revit project has an internal coordinate system for all the elements that make up the model in a project. Those coordinates are only known to this project. This is acceptable if you have a standalone model whose position is not relevant to other models or to a site. However, if you want the position of the model to be known to other linked models, you need to enable share coordinates.

Shared coordinates are used for remembering the mutual positions of multiple interlinked files. Those interlinked files can be all Revit files or a combination of Revit, DWG, and DXF files. Prior to delivery of architectural model to Engineers the Architect will establish both the Site and Project Origin points. Engineers should link the architectural model into their Revit project file using “Origin to Origin” placement option, and then acquire the shared coordinates from the architectural model.

The site survey DWG drawing has been linked into the Revit model and coordinates have been specified to align the model with the OS Grid of the linked survey DWG file. This results in the Revit internal coordinated aligning with the World Coordinate System (WCS) of the selected DWG file. The shared coordinate system of the host Revit project file can then be published to all the linked Revit models ensuring all the models maintain the same coordinate system.

It should be noted the Y axis (Easting of the OS) of the linked DWG becomes True North. The typical project views will be set to Project North. There is an angle difference between True North and Project North, so Project Views will have to be rotated from True North to Project North. This will allow all views to be placed square onto any drawing sheets.

When exporting to the Site view to DWG ensure the following; make sure you are in a Site view to export to DWG, also set the coordinate system to “shared coordinates” for the view. This will export the DWG into the World Coordinate System (WCS).

1. The key Northing and Easting Setting out points are:

(image from the model to be inserted)

**NOTE FOR USER:** (to be filled out with actual project information)

**NOTE FOR USER:** Grid A/1 Intersection **XXXXXXXXXXm N, XXXXXXXXXXXXm E**

## 2. Revit Origin Point:

(image from the model to be inserted)

**NOTE FOR USER:** (to be filled out with actual project information)

**NOTE FOR USER:** Survey Point Location: **XXXXXXXXXX**

**NOTE FOR USER:** Project Base Point Location: **XXXXXXXXXX**

**NOTE FOR USER:** True North: **XXXXXXXXXX**

To facilitate a smooth coordinated transfer of model data, an icon will be established in all the disciplines various models at the building project location intersection Grid X/X. As the shared location will be common to all, it will ensure effective model coordination as it will be visible to all. It will also help when models are transferred in to Navisworks as this icon will help with the alignment of all the various models who may have different local coordinate systems.

## PHASES

The project will contain the following phases:

- ➔ Existing Conditions
- ➔ New Construction

## DESIGN OPTIONS

**NOTE FOR USER:** (Design Team to indicate all Design Options for ease of sharing information / views)

Design options allow teams to explore multiple options within the context of a single project. Design options are permitted but once a decision has been finalized the alternate options should be purged from the project and the primary option merged back into the main model. If design options are still active at time of file transfer only the primary option will be considered unless specified otherwise.

## VIEW NAMING CONVENTIONS

Whenever possible, the view name should double as the Title on the Sheet. Initially the name of the floor level lines match the default floor and ceiling plan views, so if you rename a plan take care to not rename the level line.

## CONSULTANT BACKGROUND VIEWS

Arch team will set up/maintain views for export to AutoCAD showing both plan and ceiling elements. When importing AutoCAD into Revit, all files are to be linked and not imported.

## **LIBRARY MANAGEMENT\REVIT FAMILY SHARING**

Consultants will not be sharing Revit families.

Family Library Sharing – A central location will be maintained to share families....

## **PROJECT PARAMETERS**

Each consultant will maintain a shared parameter file of their own for the project which will be shared with the team as required during the project.

## **GRAPHIC CONVENTIONS**

Unless otherwise contracted, (firm name) is to use (firm name) graphic conventions for text/dimensions, tags, grids, levels, callouts, etc.

## **DRAWING\SHEET LIST**

A schedule of sheets will be produced by the architectural team. In order to organize\sort the drawing list custom parameters are required. Each team will be responsible for ensuring each sheet uses the appropriate sorting parameters.

**NOTE FOR USER:** Sheet numbering system is to follow (standard naming convention, Avanti system...)

**NOTE FOR USER:** Numbering system as :

**NOTE FOR USER:** Discipline Identification as:

**NOTE FOR USER:** Drawing Categories as:

**Sheet numbering example :** XXXXXXXXXXXX

Supplemental Drawings Numbers shall be built from the basic numbering system strategy.

Sketches issued to supplement milestone documents may be tracked separately and do not need to follow the above mentioned strategy. However, sketches are to be named by discipline of origin and follow sequential numbers such as SK A401.

Revisions to milestones are intended to be part of the original file, with the date saved indicating the new version of the file.

## **REVIT CATEGORIES**

While it is possible to model building geometry with a tool which was designed for a different building category, it is not permitted without consensus from the BIM team. (For example, it's possible to model a railing with a curtain wall.) All objects are expected to be modeled in the appropriate corresponding Revit category. If no appropriate category is appropriate for the geometry use the "generic models" category.

## **REVIT FAMILIES AND HOSTING**

As a general rule of thumb, hosted families are to be avoided because deleting a host will delete hosted elements without notification, and non-hosted elements are easier to incorporate into groups. Whenever developing custom content consider developing them as either “unhosted” or as “face-based”. Hosted families are unavoidable when the item to be placed needs to cut an opening through another object (for example: doors, windows, recessed light fixtures).

## **USAGE OF IN-PLACE MODEL FAMILIES**

In-place models are intended for “custom one-off” situations in a building. If a family occurs at more than one location in a building it should be developed as a loadable component family. The exception to that is for any “system” family.

## **LINKED FILE USAGE**

Revit Links – to ensure that all files line up in 3D space each file will be linked in using “shared” coordinates. Each linked file should be placed on its own workset.

CAD Links – generally, all cad files should be inserted “into current view” only. CAD Links should be placed on their own workset.

## **REVIT WARNINGS**

Revit is constantly monitoring warnings against model changes. Any model change which addresses a warning will automatically clear/resolve the warning. A long list of warning messages will slow down computer performance for everyone on the team. Each team is responsible for monitoring and minimizing the number of warnings in the project.

## **USAGE OF GROUPS**

Revit groups allow you to collect multiple elements for easy moving and updating. Generally, it is preferred to collect multiple objects together in families.

When groups are no longer changing in the design, groups should be exploded.

Hosted families in a group will not be permitted.

**END OF DOCUMENT**