**Building Information Modeling (BIM)**

**Execution Plan**

**Version 2022**

05.01.2022

for

**[OSU Project Name]**

[OSU Project Number]

Developed by

**[Primary A/E]**



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# USE OF THE BIM EXECUTION PLAN

Design and Construct Team Members shall complete the following BIM Execution Plan (BIM EP) in accordance with The Ohio State University’s BIM Project Delivery Standard (BIM PDS). Individual rows/cells of tables in the BIM EP can be added as needed for specific project requirements but should not be deleted. If there is information that does not apply (such as the Existing Conditions Documentation/Modeling BIM Use Case on a New Construction project) it should be marked with a N/A for Not Applicable. Any questions on completing the BIM EP should be directed to the University Project Manager.

# 1. PROJECT INFORMATION

The project’s Primary A/E, Design and Construct Model Manager, and input provided by the university Project Manager shall provide the following overall project information and narrative.

|  |  |
| --- | --- |
| **Project Information** | |
| OSU Project Name |  |
| OSU Project Number | OSU-000000 |
| FDC Project Manager |  |
| Primary A/E |  |
| OSU Campus Name |  |
| OSU Building Name |  |
| OSU Building Number |  |
| OSU Building Address |  |
| Project Gross Square Footage |  |
| Number of Floors Above Ground |  |
| Number of Floor Below Ground |  |
| Total Project Cost |  |
| Project Type (New Construction or Renovation) |  |
| Project Delivery Method |  |
| Asset Tagging Included in Project? | (Yes or No) |
| Project Narrative | |

# 2. PROJECT SCHEDULE AND MILESTONES

## 2.1. Project Phase Milestones

The project’s Primary A/E with input from the University Project Manager shall provide the following Project Schedule information, Deliverable Milestones, and key Project Stakeholders for the different phases of the project. The table below should be updated per the specific project delivery requirements such as GMP documents and other milestones.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Milestone** | **Estimated Start** | **Estimated Completion** | **Project Stakeholders**  **(Model Element Authors)** |
| Schematic Design | --/--/---- | --/--/---- |  |
| Design Development | --/--/---- | --/--/---- |  |
| Construction Documents | --/--/---- | --/--/---- | A, SE, HE, PE, EE, CE and LA |
| Bidding | --/--/---- | --/--/---- |  |
| Award | --/--/---- | --/--/---- |  |
| Construction | --/--/---- | --/--/---- |  |
| Closeout | --/--/---- | --/--/---- |  |
| Record Documents | --/--/---- | --/--/---- |  |

## 2.2. Project BIM Deliverable Schedule

In addition to the projects overall Design and Construct schedule, the University Project Manager will collaborate with the Design and Construct Model Managers to document when key BIM deliverables will be submitted to the University in accordance with BIM PDS (see Sections 4.2. BIM Execution Plan and 4.3.3. Design and Construct Final Turnover). The matrix below outlines the typical project deliverables and should be augmented by the Design and Construct Model Managers with the specific project deliverable requirements.

| **BIM Deliverable** | **Model Manger** | **Expected Due Date** | **Due Date** | **Forma**t |
| --- | --- | --- | --- | --- |
| BIM Execution Plan – Design or Design/Construct | Design & Construct | 30 days following design consultants under contract | --/--/---- | .docx |
| Design Intent BIMs & Revit Model Checker (Interim Rule Set) Results – Project Stakeholder Document Review / University Design Review | Design | Project Stakeholder Document Review / University Design Review | --/--/---- | .rvt/.pdf |
| Design Intent BIMs (for Room Numbering Review) | Design | Min. 1 month prior to bidding/ GMP issue / end of CD phase | --/--/---- | .rvt |
| BIM Execution Plan – Construct Updates | Construct | 30 days following construct team member under contract or at GMP | --/--/---- | .docx |
| Interim Conformed Design Intent Architectural/Structural BIMs and Model Checker Results (Interim Rule Set) | Design | 2-4 months prior to occupancy | --/--/---- | .rvt/.pdf |
| Project Base Point (Surveyed Real World Coordinates) | Design | 2-4 months prior to occupancy | --/--/---- | Coordinates via eBuilder |
| Conformed Design Intent BIMs (All) and Model Checker Results (Final Rule Set) | Design | 180 days following occupancy | --/--/---- | .rvt/.pdf |
| Interim Asset Worksheet | Design | Conclusion of 3D coordination | --/--/---- | .xlsx |
| Final Asset Worksheet | Construct | At occupancy | --/--/---- | .xlsx |

Additional BIM centric meetings and collaborative sessions that occur throughout the project shall be outlined in section 7. BIM MEETING PROCEDURES of the BIM EP.

# 3. PROJECT BIM GOALS

Based upon the BIM Use Cases outlined in section 2. BIM USE CASES of the BIM PDS and those in the project RFP, the Design and Construct Model Managers should identify which BIM Use Cases will be implemented on the project, along with a project specific description of how this BIM Use Case will be utilized on the project in the matrix below.

| **Design BIM Use Cases** |
| --- |
| *Refer to the RFP/RFQ on which Model Authoring use case version is applicable.*  Model Authoring – Design Intent BIMs (Architectural and Engineering)  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)*  *Or*  Model Authoring – Design Intent BIMs (Architectural only, but preferred for Engineering)  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Existing Conditions Documentation/Modeling  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Program of Requirements (POR) Validation  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Site Design  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Model Based User Group Meetings/Reviews  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Sustainability/Design Simulation/Analysis  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Clash Prevention  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Quantity Schedule  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Other  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |

| **Construct BIM Use Cases** |
| --- |
| Model Authoring – Trade Coordination BIMs  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Model Authoring – Shop/Fabrication BIMs  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Clash Detection  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Model-based Scheduling (Sequencing/Simulation)  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Model-based Estimating (Quantification/Cost Estimating)  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Site Analysis Planning  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |
| Other  *(Describe how this use case will be utilized on the project if applicable, if not use n/a)* |

# 4. BIM PROJECT PARTICIPANTS

## 4.1. Model Author Definitions

Per section 3. BIM PROJECT PARTICIPANT ROLES of the BIM PDS, the Discipline Model Managers and their organizations will be documented as Model Element Authors (MEA) in the following Model Author Matrix. The following tables represent standard naming conventions that consistently represent the participating organizations and should be utilized throughout the BIM EP. Model Element Author abbreviations and naming conventions shall not be edited, but can be removed or added with the approval of the University Project Manager as needed per project.

| **Abbreviation** | **Model Element Author** | **Organization** |
| --- | --- | --- |
| U | University | The Ohio State University |
| A | Architect |  |
| SE | Structural Engineer |  |
| PE | Plumbing Engineer |  |
| HE | HVAC Engineer |  |
| FE | Fire Protection Engineer |  |
| EE | Electrical Engineer |  |
| TE | Technology Engineer |  |
| CE | Site/Civil Engineer |  |
| LA | Landscape Architect |  |
| CM | Construction Manager |  |
| GC | General Contractor |  |
| SC | Structural Contractor |  |
| DB | Design Builder |  |
| PC | Plumbing Contractor |  |
| HC | HVAC Contractor |  |
| FC | Fire Protection Contractor |  |
| EC | Electrical Contractor |  |
| TC | Technology Contractor |  |
|  | Other |  |
|  | Other |  |
|  | Other |  |
|  | Other |  |

## 4.2. BIM Project Participants and Model Element Authors

In addition to The Ohio State University Project Participants, all BIM Project Participants from the Design and Construct phases of the project shall be outlined in the following matrix.

| **The Ohio State University Project Participants** | | | | |
| --- | --- | --- | --- | --- |
| Department | Role | Name | E-mail | Phone |
| FOD | Project Manager |  |  |  |
| FITS | University  Model Manager |  |  |  |
| FOD | Closeout Coordinator |  |  |  |
| TSG | Project Representative |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |

Led by the Design Model Manager, the following Design Team Project Participants will be focused on the development and utilization of the Design Intent BIM for the Use Case defined in section 3. PROJECT BIM GOALS of the BIM EP as well as the project deliverable outlined in the BIM PDS.

| **Design Team Project Participants** | | | | |
| --- | --- | --- | --- | --- |
| MEA | Role | Name | E-mail | Phone |
|  | Primary A/E |  |  |  |
|  | Design Model Manager |  |  |  |
| A | Architectural Model Manager |  |  |  |
| SE | Structural  Model Manager |  |  |  |
| HE | HVAC Model Manager |  |  |  |
| PE | Plumbing  Model Manager |  |  |  |
| EE | Electrical  Model Manager |  |  |  |
| CE | Site/Civil Model Manager |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |

Led by the Construct Model Manager, the following Construct Team Project Participants will be focused on the development and utilization of the Trade Coordination BIM for the Use Case defined in section 3. PROJECT BIM GOALS of the BIM EP as well as the project deliverable outlined in the BIM PDS.

| **Construction Team Project Participants** | | | | |
| --- | --- | --- | --- | --- |
| MEA | Role | Name | E-mail | Phone |
|  | Construct  Model Manager |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |
|  | Other |  |  |  |

# 5. MODEL COLLABORATION, TRANSMISSION & PERMITTED USE STRATEGIES AND SUPPORTING SOFTWARE

Design and Construct Model Managers are responsible for completing the following matrix, identifying how and when digital data will be shared between Model Element Authors (sender) and what the Permitted Use of that information is by the Model User (receiver).

All BIM Project Participants and Model Element Authors (per section 4. BIM PROJECT PARTICIPANTS of the BIM EP) are required to have their own software licenses and computers capable of running the needed software (as outlined below) to perform their portion of work. In addition, they shall have network connectivity and wi-fi accessibility enabling remote project collaboration via webinars and model sharing.

Revit models must be submitted in the currently available version of Revit or the current year available minus one or two years at the time of submission. The Conformed Design Intent BIMs rows below should take this into consideration.

Per Section 3. BIM PROJECT BIM GOALS of this document the BIM Use Case column represents the minimum requirements and options to leverage BIM on projects. Per the “Use of the BIM Execution Plan” statement, these should be updated per project.

The following Permitted Use(s) of the BIM and/or shared digital data by the Model User (Receiver) will be identified for each BIM Use Case in the matrix below. The MEA is not responsible for any use of the geometry and data beyond its prescribed reliability and documented Permitted Use.

| **Permitted Use Abbreviations and Descriptions** | |
| --- | --- |
| S | Store, View and Query |
| I | Integrate (incorporate additional data without modifying data received) |
| M | Modify as required to fulfill project obligations |
| U | As defined in Section 5.4. (Model Ownership and Intellectual Property Rights of the BIM PDS) |

| **BIM Use Case** | **MEA** | **Model User** | **Frequency** | **Software and Version** | **File Exchange Format** | **Permitted Use** |
| --- | --- | --- | --- | --- | --- | --- |
| Model Authoring - Design Intent BIMs | A |  |  |  |  |  |
| SE |  |  |  |  |  |
| PE |  |  |  |  |  |
| HE |  |  |  |  |  |
| FE |  |  |  |  |  |
| EE |  |  |  |  |  |
| Existing Conditions  Documentation,  Modeling |  |  |  |  |  |  |
| PoR Validation |  |  |  |  |  |  |
| Site Design |  |  |  |  |  |  |
| Model Based User Group Meetings/Reviews |  |  |  |  |  |  |
| Sustainability/Design Simulation/Analysis |  |  |  |  |  |  |
| Clash Prevention |  |  |  |  |  |  |
| Quantity Schedule |  |  |  |  |  |  |
| Model Authoring - Trade Coordination BIMs |  |  |  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Model Authoring - Shop/Fabrication BIMs |  |  |  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Clash Detection |  |  |  |  |  |  |
| Model-based Scheduling |  |  |  |  |  |  |
| Model-based Estimating |  |  |  |  |  |  |
| Site Analysis Planning |  |  |  |  |  |  |
| Interim Conformed Design Intent BIMs / Conformed Design Intent BIMs | A | U | Once |  | .rvt | U |
| SE |  | .rvt | U |
| PE |  | .rvt | U |
| HE |  | .rvt | U |
| FE |  | .rvt | U |
| EE |  | .rvt | U |

Any technology-centric object enablers, installs, viewers or other downloads that are required to view and/or utilize models based upon their permitted use as outlined this section should be outlined below.

| **Software** | **Object Enabler Name** | **Link to Download Object Enabler** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

5.1. Model Collaboration Strategy, Transmission and Workflow Diagrams

Design and Construct Model Managers shall outline how they intend to collaborate in Autodesk Construction Cloud (ACC) and share models to support the project’s applicable BIM Use Cases and Deliverables. This should include how different Model Element Authors will work to not have duplicate component systems and assemblies as well as defining where ownership begins and ends with different disciplines (i.e. Plumbing Engineering vs. Civil Engineering and Architecture vs. Landscape Architecture). In addition, Design and Construct Model Managers shall outline their collaboration processes to support both the Clash Prevention and Clash Detection BIM Uses Case.

Further explanations of the data transmission process and workflow diagrams, folder structures, permissions, project websites infrastructure for collaboration and interoperability should be included below.

*(Provide applicable collaboration, model transmission and workflow diagrams, folder structures, permissions, and project websites infrastructure graphics here)*

## 5.2. Conformed Design Intent BIMs Development

Project Team Members shall document their intended process to support the on-going development and evolution of their Conformed Design Intent BIMs for final submission to the University.

*(Include process maps and/or definitions here – this comment can be deleted once updated)*

# 6. BIM MEETING PROCEDURES

Design and Construct Model Manager are responsible for defining the required meetings, frequency and needed participants to support the project BIM Deliverables outlined in BIM PDS.

| **Meeting Type** | **Project Phase** | **Frequency** | **Participants** | **Location** |
| --- | --- | --- | --- | --- |
| BIM Kick-off/ EP Review | Design | Once | University, Design and Construct (if applicable) Model Managers |  |
| Model Based User Group Meetings/Reviews | Design |  |  |  |
| Project Stakeholder Document Review | Design | Once | U |  |
| Clash Prevention Meetings | Design |  | U |  |
| BIM Execution Plan Review | Construct | Once | University, Design and Construct Model Managers |  |
| Clash Detection Meetings | Construct |  |  |  |
| Coordination Sign-off Meeting | Construct |  | U |  |
| Conformed Design Intent BIMs Development | Construct | As Defined in Section 5.2. | Design & Construct Model Managers |  |
| Interim Conformed Design Intent Architectural/Structural BIMs and Model Checker Results | Construct | Once | University & Design Model Manager |  |
| Conformed Design Intent BIMs Turnover | Project Completion and Turnover | Once | University & Design Model Managers |  |
| Interim Asset Worksheet Development | 3D Coordination Completion | Once | University, Design Model Managers |  |
| Final Asset Worksheet Turnover | Occupancy | Once | University and Construction Team |  |

# 7. MODEL ELEMENT TABLE

The LOD Matrix of BIM Deliverables (derived from the AIA G202-2013 which is organized by CSI UniFormat 2010) will be completed by the Design and Construct Model Managers referencing the LOD Definitions outlined in section 5. BIM DELIVERABLE DEVELOPMENT of the BIM PDS. In addition to defining the model’s minimum progression via the LOD benchmarks, the Design and Construct Model Manager will also define the responsible party for developing that geometry in the MEA Column. Additional notes and comments should be called out in the notes tab of the LOD Matrix of BIM Deliverables.

Download the LOD Matrix of BIM Deliverables here:

OSU Projects LOD Matrix:

<https://fod.osu.edu/sites/default/files/lod_matrix_of_bim_deliverables.xlsx>

Wexner Medical Center Projects LOD Matrix:

<https://fod.osu.edu/sites/default/files/lod_matrix_of_bim_deliverables-wexner_medical_center_projects.xlsx>The LOD Matrix of BIM Deliverables shall be submitted along with the initial and subsequent submissions of this document.

# 

# 8. MODEL COORDINATE SYSTEMS

All survey work performed on or for The Ohio State University shall follow the Requirements for Survey Information as outlined in Appendix E of the Building Design Standard.

Project Coordinates, Work Points and orientation to True North are identified by the Design and Construction Model Managers and agreed upon by the University Model Manager. This includes the definition of a Shared Coordinate System and intelligent Project Base Point in the Conformed Design Intent BIMs which will synchronize back the University’s GIS applications and bring a high level of consistency to the integration of models into the large context of the campus.

The Project Base Point Coordinates should be placed at a corner of the building being designed. This corner should be noted in Section 9.2 Building Key Plan. If renovation of existing building, they should be at a corner of the existing building. Elevation should be set at the elevation of the First Floor of the building above sea level. Angle to True North may not be equal to or greater than 180 degrees. The Project Base Point Coordinates should be established at/prior to submitting the Interim Conformed Design Intent BIMs (in reference to the NAVD88 Datum). For new buildings, the surveyed real world coordinates of the Project Base Point need to be submitted via eBuilder at submission of the Interim Conformed Design Intent BIMs. The Project Base Point does not need updated in the model prior to submission.

The University has no requirements on the model’s origin (0,0,0). The project team shall determine the origin based on the team’s model exchange and alignment protocol.

| **Project Coordinate System** | |
| --- | --- |
| **Name** | **Location Description** |
| Origin | *(e.g. Grid intersection XX)* |
| Project Base Point | Graphically note in Section 9.2 |

Survey Point Coordinates may be set as project requires and do not need to be documented here.

# 9. MODEL STRUCTURE

## 9.1. Deliverable Naming Conventions

Design and Construct Model Manager are responsible for documenting the Model Naming Conventions for their final BIM Deliverables in the tables below in accordance with section 5.1. MODEL NAMING CONVENTIONS, FORMATS & TURNOVER PROCESS of the BIM PDS. Any deviations from the outlined naming convention shall be discussed with and approved by the University Project Manager.

| **BIM Deliverable Naming Structure** | |
| --- | --- |
| Design Intent BIMs |  |
| Architectural BIM |  |
| Structural BIM |  |
| HVAC BIM |  |
| Electrical BIM |  |
| Plumbing BIM |  |
| Fire Protection BIM |  |
| Site/Civil BIM |  |
| Other BIM |  |
| Other BIM |  |
| Conformed Design Intent BIMs |  |
| Architectural BIM |  |
| Structural BIM |  |
| HVAC BIM |  |
| Electrical BIM |  |
| Plumbing BIM |  |
| Fire Protection BIM |  |
| Site/Civil BIM |  |
| Other BIM |  |
| Other BIM |  |
| Interim/Final Asset Worksheet |  |

## 9.2. Building Key Plan

The Project Base Point location shall be clearly noted on the key plan below.

*(Provide key plan diagram or graphic here)*

# 10. FLOOR/LEVEL AND ELEVATION NAMING CONVENTIONS

In collaboration with the University Model Manager, Design and Construct Team Members will work to define the relevant Floor Level Naming conventions for the project based upon the University’s existing standards. Floor Level Names should conform to the standards noted Section 5.1.1 Model Naming Convention of the BIM PDS.

The University Model Manager will assist in coordinating the appropriate naming conventions on a project by project basis. The Project Team will document those naming conventions along with their corresponding elevation (above Project Base Point elevation) which should follow the standards outlined in Section 8: MODEL COORDINATE SYSTEMSof the BIM EP.

| **Floor Level Name** | **Floor Elevation** |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |