

PROJECT NAME

BIM EXECUTION PLAN

PROJECT INFORMATION		
CLIENT	XX XXXXX	
PROJECT NAME	XX XXXXX	
PROJECT NUMBER	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	
DATE	XXXXXXXX 2016	
PROJECT LOCATION & ADDRESS	XXXXX, XXXXX.	

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INTRODUCTION

The purpose of this document is to record the agreed strategies and process for the whole team working on this BIM project with AEC team. It is to serve as a reference and record of the collaborative process throughout the life of the project, and it is expected to evolve from the start to the end of the BIM process.

BIM is more than a set of computer models, but a mindset and process which is at the origin of an integrated project team.

This document is addressing project workflows, model creation, model authors and model ownership & cross project data sharing.

The need for communication increases along the implementation of the BIM process and this document is one small part of the project submission.

This document will support communication among the different teams, obliged to adapt this BIM strategy; otherwise potential efficiencies will be lost.

No single member of the team shall make a decision regarding how the whole team shall work without prior consultation with the whole team.

This serves to ensure that work efforts are not duplicated by other team members avoiding costly task redundancy.

REVIEW	DATE OF REVISION	RELEASE DATE
Original Version : Ind. 0	XXXXXXXXXX	Initial Version

A3: PROJECT SCHEDULE, PHASES & MILESTONES

PROJECT PHASE/MILESTONE	ESTIMATED START DATE	ESTIMATED WORKING TIME	RESPONSABILITY	FILE FORMAT
Preliminary Design (SCHEMATIC DESIGN) LOD 200	XXXXXX	X months	AEC Team	RVT
Detailed Design (DETAIL DESIGN) LOD 200	XXXXXX	X months	AEC Team	RVT
Design Development (DETAIL DEVELOPMENT) LOD 300/350	XXXXXX	X months	AEC Team	RVT

A4: PROJECT BIM TEAM CONTACTS

ROLE	ORGANIZATION	BIM Contact Person	EMAIL	PHONE
Architect	XXXXX Architects			
Partner Architect	XXXXX Architects			
Structural Engineer				
MEP Engineer				
Civil Consultant				
Landscape Consultant				
Others				

SECTION B: BIM SCOPE

This section lists the BIM uses for the project and the party, or parties, responsible for completing that use and any output defined for that use.

B1: BIM USES

The BIM uses list what the models will be used to produce during this particular project.

This is part of the guide instructs the project team on modeling requirements.

BIM USES	GOAL DESCRIPTION	RESPONSIBLE GROUP
Design Authoring	Using BIM software to develop the design by creating a Building Information Model with a powerful database of properties and schedules.	AEC TEAM
Design Reviews	Using the BIM model to periodically review the design with the stakeholders, communicate and coordinate changes, and solve design and constructability issues.	AEC TEAM
3D Coordination and Conflict Detection	Using Clash Detection during the coordination to compare 3D models of building systems and eliminate major system conflicts prior to installation.	AEC TEAM

B2: BIM STANDARDS & SOFTWARE

Every company will have its own specific model standards and protocols. To enable true collaboration on a BIM, the team must be working from a single set of protocols. Consultants are requested to issue a copy of their in-house BIM protocols for team’s reference.

New versions of modeling software are released each year. These are not normally backwards compatible and so it must be agreed, at the start of any new project, that the latest version of the software, compatible for all parties, is used to take advantage of product efficiencies etc. This should be discussed if it is likely to pose an issue to the wider project team.

Once a model is started in one version, it is imperative that it is not upgraded to a newer version, unless (and following discussions among all parties,) by the express written agreement and sanctioned by the AEC Team BIM Managers.

Add-ons and external tools to Revit will include but are not limited to the Autodesk Subscription Extensions, Autodesk LABS Revit Search String, Autodesk Revit Model Review, Autodesk Work-Sharing Monitor, Autodesk NavisWorks Exporter, and Ideate BimLink.

The possibility of creating or modifying custom API tools is also available depending on complexity and time.

DISCIPLINES	COMPANY	USING BIM	SOFTWARE	BUILD VERSION
Architecture	XXXXX Architects	YES	Revit BDSP 2016	16.0.490.0 20150714_1515(x64) Service Pack 2
Structural		YES	Revit BDSP 2016	
MEP			XXX	
Civil			XXX	
Landscape			XXX	
Exterior Wall Consultant			XXX	
Lighting			XXX	
Coordination			NavisWorks Manage 2016	
Others			XXX	

B3: BIM TARGETS

This section is used to capture the objectives of the team at the outset of the BIM project.

- Legend "Priority": **High:** The model is adjusted until the interfaces planned work
 Average: No return provided between model and calculation software
 Low: Possible Modeling
 Null: Objective excluded.

OBJECTIVES	PRIORITY	COMMENTS
Site modeling	High	
Modeling of existing	Null	
Architecture conception	High	
Structure Engineering conception	High	
Engineering Air Conditioning - Ventilation – Heating conception	TBD	
Plumbing Engineering conception	TBD	
HV LV Electricity Engineering conception	TBD	
Design review	High	
Production of 2D deliverables	High	
Structural calculation	High	
Energy calculation	Null	
Lighting calculation	TBD	
Codification	TBD	
Cost Analysis	Low	
Extraction of quantities	Average	
3D Coordination	High	
Construction system design	Null	
Model to be delivered	Null	
Implementation, visa and synthesis model	Null	
4D planning	TBD	
Maintenance model	TBD	
Operating model	TBD	
Occupation model	TBD	

B4: PROJECT MEETINGS

At the earliest opportunity in the project lifecycle, it is important that the AEC project BIM team hold an initial BIM meeting. This meeting should introduce the concept behind this document and determine the collaboration on the BIM platform for the duration of the project.

As many members of the team should attend as possible, including all concerned stakeholders during design, construction and operation. The purpose of this meeting is to identify the scope of the BIM and outline the brief and the BIM deliverables.

The Project team should meet regularly throughout the project to review the BIM. It is suggested that these meetings are held separately to the main design team meetings and attendance should be by the persons identified as "BIM Contact Person" in table A4.

The sole purpose of these meetings shall be for the review of the BIM and the processes contributing to it. Subsequently, this document shall be updated and re-distributed to the team.

Meeting Dates	Frequency of Subsequent Meetings	Location	Required Attendees
TBD by AEC	TBD by AEC	TBD by AEC	BIM managers and project managers

SECTION C: MODEL ORGANIZATION

C1: PROJECT LANGUAGE

The official language used for the BIM models is **English/XXXXX**, throughout all three phases.

Only administrative phase's deliverable require full **XXXX** in BIM models.

C: REVIT MODEL TYPES

All Revit model should be **Central files** including listed worksets by discipline, using the Autodesk Etransmit tool to publish central files to partners.

C3: PROJECT UNITS

The Metric system of units will be used throughout the project. Length unit is set to **Centimeters**.

Angles will be set to decimal degrees.

Printing length unit will be in millimeters.

C4: ANNOTATIVE PRECISION

The Precision for length will have zero decimal places. Angular Dimensioning will have a precision of two decimal degrees (.00).

C5: UNIQUE REFERENCE SYSTEM FILE (URS)

Project date and coordinates will be defined using a Unique Reference System (URS) file or files. The Unique Reference System is a Revit Project file dedicated for date elements and coordinate definitions for the entire project or specific buildings in the project.

It will contain:

- Grids
- Concrete levels
- Finished Floor levels
- Project Base Point
- Project Survey Point Definition
- True North definition

C6: PROJECT BASE POINT

The project's Shared Coordinate System "**URS**" (**Unique Reference System**) shall be agreed upon by all parties prior to start of the project. The architectural model shall serve as basis for the entire BIM model. The BIM project shall adopt the established Project Shared Coordinate system across all BIM data file to allow them to be referenced without modification.

The agreed Project Base Point is: TBD by AEC Team

X - East	Y - North	Elevation	Angle to True North
0000.0000	0000.0000	00.0000	000.000

C7: SHARED COORDINATE SYSTEM

Once a shared coordinate system has been established (usually through survey), it will be used to establish the project shared coordinates in a shared site file. This will then be distributed to the team to create their proper respective shared coordinate systems.

The Shared Coordinate Point is: TBD by AEC Team

C8: PROJECT FILE STRUCTURE DIAGRAM

AEC Revit files shall be linked across several central files to allow for the most efficient workflow process. Underlying every project structure shall be the main collector file where ALL worksets throughout the project must be listed. This ensures that the model can be strategically and partially opened for the whole lifecycle of the building model.

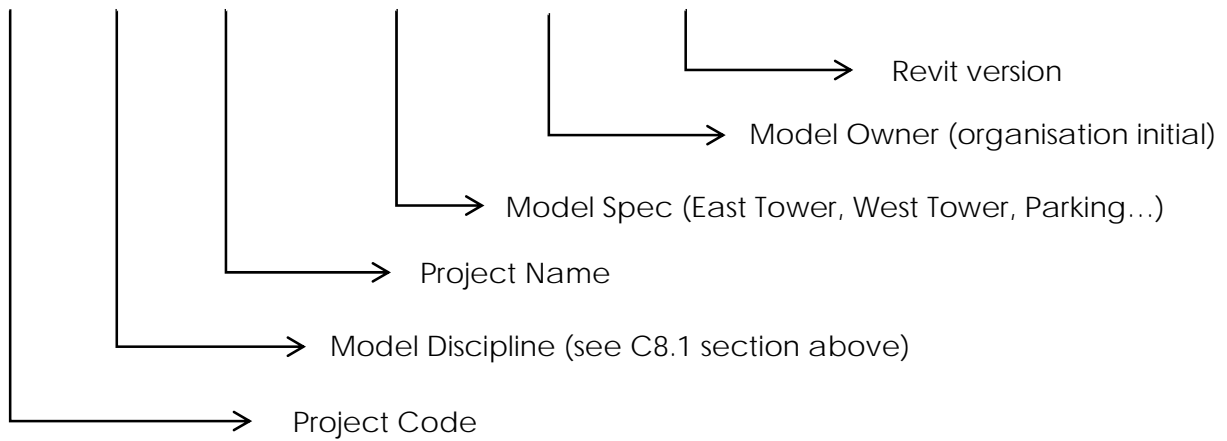
The project files structure is: TBD by AEC Team

C7: PROJECT REVIT FILE NAMING

All files shall be named as listed in table C8.1 using the nomenclature described below.

Revit model naming convention

XXXX_MH_GS282_E-TOWER_XX_R15.rvt



C8: REVIT MODEL TYPES



Base Models

- The **Base Model** is where all the 3D modeling is done.
- The project is usually divided in multiple base models to facilitate worksharing.
- Specific model division by every AEC team member will be determined and added to the BEP.



URS (Unique Reference System) Model

- The **URS Model's** content is limited to the grids and the levels of a project, project base point and shared point.
- Typically, there is only one **Grids and Levels Model** on a project.
- All grids and levels within all the other models of a project are created from a copy/monitor from the **Grids and Levels Model**.



Main/Sheet Model

- All the base models are linked inside the **Main Model**.
- The **Main Model** is where all the sheets are created.



DWG Base Model

- The purpose of the DWG Base Model is to combine all the DWG files within a model that can be linked inside the Base Models.
- Linking DWG files within the Base Models can pollute the models with data that can reduce their performance.

C8.1: REVIT MODEL NAMING BY DISCIPLINE

AR	ARCHITECTURE
ST	STRUCTURE
MH	MECH HVAC
MP	MECH PLUMBING
ME	MECH ELECTRICAL
ID	INTERIOR DESIGN
LA	LANDSCAPE

C9: WORKSETS

Worksets allow multiple users to simultaneously work on a model file through use of a Central File and synchronized Local copies.

The following are the Standard **XXXXX** Worksets. Specific projects may require modified, more, fewer, or different worksets. (STR, HVAC, Plumbing, Electrical LC, Electrical HC, Firefighting, Gaz)

The Main/Sheets_Central file must contain every Workset contained throughout the whole project in order to maintain a master control throughout the model. This section identifies the worksets used in each discipline-specific model

All Worksets by discipline must be listed in the Appendice F3

SECTION D: MODEL LEVEL OF DETAIL

D1: MODEL CONTENTS

The 3D model will be developed to a Level of Detail (LOD) specified in the form of agreement set out and agreed upon from the start of the project, depending on the project phase, discipline and model element type. A complete Projected LOD Delivery Table can be found in the Appendix to this document. AIA Document E202-2008 will be used for the purposes of defining the term LOD, with a brief summary below:

100	200	300	350	400	500
Model elements represent Overall Building Massing, indicating overall area, height, volume, location and orientation.	Model elements represent generalized systems that indicate approximate quantities, sizes, shapes and locations.	Model elements represent specific systems that indicate accurate quantities, sizes, shapes and locations.	Model elements represent specific systems that indicate accurate quantities, sizes, shapes and locations. Interface with other building systems.	Model elements represent specific systems that indicate accurate quantities, sizes, shapes and locations. In addition, they include complete fabrication, assembly and detailing information	Model elements represent as-build conditions

LOD 100 - Conceptualization / Program of Requirements Phase

Overall building massing indicative of area, height, volume, location, and orientation may be modeled in three dimensions or represented by other data. The model may be analyzed based on volume, area and orientation by application if generalized performance criteria assigned to the representative Model Elements

LOD 200 - Schematic Design Phase

The Architectural model will show the general design and layout of the building structure and act as the baseline for all other subsystem designs, such as MEP and Structural models. The subsystem designs will be used to show the initial selection and layout of building components.

LOD 300 - Construction Documents Phase

Model Elements are modeled as specific assemblies accurate in terms of quantity, size, shape, location, and orientation. Non-geometric information may also be attached to Model Elements.

LOD 350 – Issued for construction Phase

Model Elements are modeled as specific assemblies accurate in terms of quantity, size, shape, location, orientation, and interfaces with other building systems. Non-geometric information may also be attached to Model Elements.

For information:

LOD 400 - Bidding Phase (not in AEC scope, should be in Building Contractor's scope)

The design models will be adjusted to reflect agency feedback. The Construction model will be enhanced and further used for estimating, scheduling, construction sequencing, trade coordination, and constructability analysis.

LOD 400 – Construction (not in AEC scope, should be in Building Contractor's scope)

The Architectural and Consulting Engineers' models will be revised throughout construction, based on owner directives and As Built comments. The models will always reflect the revised contract documents.

LOD 500 - Facility Management (not in AEC scope, should be in Building Contractor's scope)

The Architectural and Consulting Engineers' models will be used to represent the actual assembly of the building from construction.

SECTION E: COLLABORATION

E1: FILE COORDINATION & PROJECT COORDINATION

Sharing files and sending content to consultants shall be done via **TBD** or similar ftp site, to track access and submissions.

These files will then be downloaded for reference by all parties to ensure a coordinated design. Files downloaded will be linked by Shared Coordinates.

Meeting Type	File Type	Project phase	Frequency
Model sharing for information	REVIT	SCHEMATIC DESIGN	Weekly (each Friday)
		DETAIL DESIGN	
		DETAIL DEVELOPMENT	
Model sharing for coordination	REVIT	SCHEMATIC DESIGN	Weekly (each XXXXXX)
		DETAIL DESIGN	
		DETAIL DEVELOPMENT	
3D Coordination	REVIT	SCHEMATIC DESIGN	TBD by AEC Team
		DETAIL DESIGN	
		DETAIL DEVELOPMENT	

E2A: REVIT FILES – EXPORT

When exporting a file for external consultant coordination, the project BIM manager should complete the following actions prior to transferring the file for external consultants' use.

Refer to **XXXXX** Model Health Check list before exporting Revit model file.

E3A: CAD CONTENT – EXPORT REVIT TO CAD

Revit to CAD export shall be limited to consultant coordination & information transfer and not for the purpose of **AEC TEAM** drawing production. All CAD exports shall be exported according to **XXXXX** CAD Standards.

E3B: CAD CONTENT – IMPORT CAD TO REVIT

CAD Files are not to be linked directly into Revit project model, a Revit "Collector" DWG Base model file should be used and linked into the project model file.

This type of file is used at **XXXXX** and named: XX

Upon import, all files that are linked to the collector files shall be linked "Origin to Origin". CAD data should always be linked inside the current view only; this will avoid being shown automatically in all other applicable views. CAD files to be utilized for reference will be brought in with colors set to Black and White.

E4: COORDINATION & CLASH DETECTION

For coordination and clash reporting, Revit models will be reviewed and coordinated using NavisWorks Manage at scheduled intervals in during the project.

An .nwd file shall be loaded onto the shared work area of the project and a clash detection shall be executed for each Revit model submission within NavisWorks Manage to be shared amongst the project parties.

Following the appropriate adjustment to the detection tolerance, each clash produced in the resultant report along with the .xml file shall be distributed and dealt with by the relevant party before the next model submission.

SECTION F: APPENDICES

- 1. CSI MASTERFORMAT 2014**
- 2. LOD SPECIFICATION / INFORMATION LEVEL OF DETAIL**
- 3. WORKSETS**
- 4. PROJECT ROLES AND RESPONSIBILITIES**
- 5. MODEL EVALUATION CHECK LIST**
- 6. CLASH DETECTION INFORMATION**
- 7. MODELING STRATEGY**
- 8. REVIT BEST PRACTICES**