



Appendix F i – Project BIM Execution Plan – example

The Project BIM Execution Plan (BEP) is a detailed plan that defines how the project will be executed, monitored and organised with regard to BIM.

The intent of the BIM Execution Plan is to provide an outline that will ensure all parties involved are clearly aware of the opportunities and responsibilities associated with projects that implement BIM.

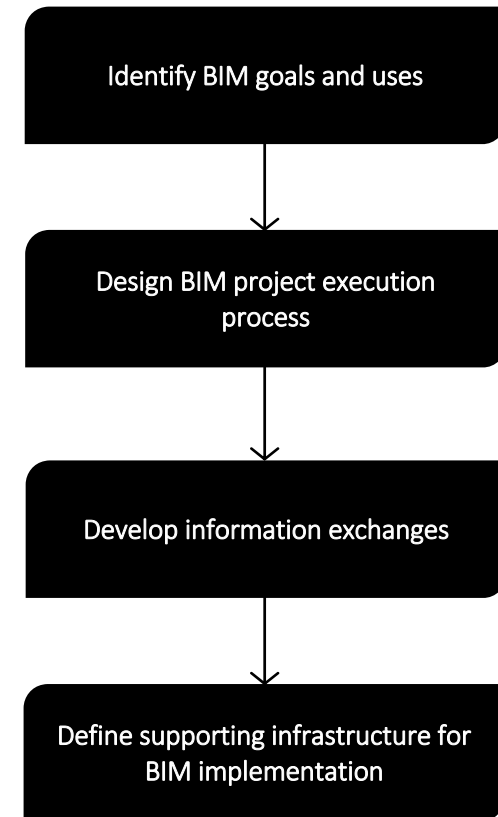
The plan defines why we are using BIM on the project. It sets goals, objectives and people's responsibilities, and outlines how the process will be executed throughout the project's life cycle.

The BIM Execution Plan should be considered a living document and can be developed and refined throughout the project's life cycle to ensure the project remains on schedule and meets briefed requirements.

This example of a BIM Execution Plan can be used as a starting point for the development of a BEP. It is tailored to the front end of projects with a design team focus. Some projects may have multiple BIM Execution Plans that overlap, covering design, construction and Facilities Management phases; this example can serve as a framework.

It should be used in conjunction with the BIM Execution Plan template provided in [Appendix F ii](#).

The BIM Execution Plan should be developed with reference to the [New Zealand BIM Handbook](#).



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PREPARED BY:	COMPANY:	DATE:
Jim Bim	ABC Consultants	1/7/2014

REVISION RECORD

REVISION	DATE	BY WHOM	COMMENTS

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PROJECT INFORMATION

Project name:	North West Tower
Project owner:	XYZ Ltd
Project address/location:	1 Closer Street
Brief project description:	30 storey office and residential tower with 6 levels below grade
Contract type/delivery method:	Design and Build
Contractor engagement - indicative date:	December 2014
Has a Project BIM Brief been completed?	Yes – issued 1/7/2014

PROJECT SCHEDULE

Fill in the table below with any major project milestones which occur during the project's life cycle.

Project phase/milestone	Estimated start date	Estimated completion date
Pre-design	1 July 2014	1 September 2014
Concept design	15 September 2014	15 November 2014
Preliminary design	25 November 2014	25 January 2015
Developed design	10 February 2015	10 April 2015
Detailed design	15 April 2015	1 September 2015
Construction	1 July 2015	1 September 2017
Handover	September 2017	November 2017
Operation	November 2017	NA

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KEY PROJECT CONTACTS

List all of the key stakeholders who will be involved in BIM on this project.

Role	Discipline	Company name	Contact name	Contact details
Client representative	NA	CR Management	Joan Jenkins	joan@crm.com
Project manager	NA	PM Project Managers	Geoff Geoffrey	geoff@pm.com
Quality surveyor	QS	QS Quantity Surveyors	Quentin Quinn	qquinn@qsqs.com
BIM manager(s)	NA	ABC Consultants	Jim Bim	jim@abc.com
Design BIM coordinators	ARCH	LC Architects	Lee Brown	lee@lca.com
	STRUCT	JKL Structural Engineers	John James	john@jkl.com
	MEP	DPW Engineers	Dana Wallis	dana@dpw.com
	FIRE	Engine Fire Engineers	Walt Engine	walt@efe.com
Discipline leads	ARCH	LC Architects	Lilly Lindsey	lilly@lca.com
	STRUCT	JKL Structural Engineers	Kevin Kerr	kevin@jkl.com
	MEP	DPW Engineers	Duncan Davies	duncan@dpw.com
	FIRE	Engine Fire Engineers	Walt Engine	walt@efe.com
Other project roles	CONSTRUCT	Construct Contractors	Corey Cuthill	corey@construct.com

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PROJECT GOALS

List client goals and expectations for the project. This table will help define the BIM Uses required for the project, in alignment with the project goals.

Refer to Appendix D for BIM Uses.

This information could be extracted from the Project BIM Brief and any associated documents, if one has been completed.

Priority (high/med/low)	Goal description - value added objectives	BIM Uses
High	Optimisation of design, with respect to overall project value and budget control	Design Authoring, Design Review, Cost Estimation
Med	Have a digital asset (3D models) that can be used for future use in facility management	Record Modelling
High	Better coordinated documentation for the contractor	Design Authoring, 3D Coordination
Med	Effective communication of the design with key stakeholders in the design phase	Design Authoring, Design Review, Phase Planning (4D Modelling)

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BIM USE COMPETENCY REQUIREMENTS

The purpose of this table is to identify the value, experience and competencies required of the responsible parties for BIM on the project.
Refer to Appendix D for BIM Uses.

Client required BIM Uses for the project

This information could be extracted from the Project BIM Brief and any associated documents, if one has been completed.

If one has not been developed, the “Project goals” table will assist in the selection of BIM Uses, based on project goals, team characteristics and capability.

BIM Use	Value to project	Responsible parties	Value to responsible parties	Competencies required to implement
	High/med/low		High/med/low	
Design Authoring	High	ARCH STRUCT MEP FIRE	High	<ul style="list-style-type: none">Ability to create and develop a Building Information ModelDesign and construction experience
Design Review	Med	ARCH STRUCT MEP FIRE	High	<ul style="list-style-type: none">Ability to manipulate, navigate and review a 3D modelStrong understanding of how building/facility systems integrate with one another
3D Coordination	High	ARCH STRUCT MEP FIRE	High	<ul style="list-style-type: none">Ability to manipulate, navigate and review a 3D modelAbility to run clash detection softwareKnowledge of building systems
Cost Estimation	High	QS CONSTRUCT ARCH STRUCT MEP	High	<ul style="list-style-type: none">Ability to identify quantities for the appropriate estimating level upfrontAbility to adjust a cost plan to suit data available in the model over the duration of design phase
Record Modelling	Med	CONSTRUCT	Low	<ul style="list-style-type: none">Ability to manipulate, navigate and review a 3D modelAbility to use BIM application for building updates

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				<ul style="list-style-type: none"> Ability to effectively communicate between the design, construction and Facilities Management teams
Phase Planning (4D Modelling)	Med	CONSTRUCT	High	<ul style="list-style-type: none"> Knowledge of construction programming and general construction process (a 4D model is connected to a programme, and is therefore only as good as the programme to which it is linked) Knowledge of 4D software: ability to import geometry, manage links to programmes, produce and control animations, etc.

Project team additional BIM Uses for the project

The project team may agree additional BIM Uses that will benefit them. Use the table below to record this information.

BIM Use	Value to project	Responsible parties	Value to responsible parties	Competencies required to implement
	High/med/low		High/med/low	
Construction System Design	Med	CONSTRUCT	High	<ul style="list-style-type: none"> Ability to manipulate, navigate and review a 3D model Ability to make appropriate construction decisions using a 3D system design software Knowledge of typical and appropriate construction practices for each component

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INFORMATION MANAGEMENT & EXCHANGE

Information exchange

Identify the responsible parties, design authoring software and version to be used with the associated BIM Uses, along with the collaboration file format that the team will use in order to exchange models.

BIM Use	Responsible parties	Software	Version	Intended collaboration file format
Design Authoring	ALL	XYZ	V1.0	.xyz
Design Review	ALL	XYZ	V1.0	.xyz
3D Coordination	ALL	XYZ	V1.0	.xyz
Cost Estimation	QS CONST	XYZ	V1.0	.xyz
Record Modelling	CONST	XYZ	V1.0	.xyz
Construction System Design	CONST	XYZ	V1.0	.xyz
Phase Planning (4D Modelling)	CONST	XYZ	V1.0	.xyz

Specify a file naming convention for exchanged models, what data sharing platform these files will be saved to and any additional information that may be required.

Discipline	File name	Intended collaboration/data sharing platform	Additional information
Architecture	ARCH-NWT	XYZ	
Structure	STRUCT-NWT	XYZ	
Mechanical	MECH-NWT	XYZ	
Electrical	ELEC-NWT	XYZ	
Fire	FIRE-NWT	XYZ	

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Measurement and coordinate systems:

Identify project spatial location (real world coordinate and level system)

Project datum	Mount Eden Circuit 2000	
Height datum	22.5m above sea level	
Project location	25307m easting	-18305m northing
Model positioning	56 degrees to project north	

Model standards

As a minimum, each discipline in the project team should model industry proven, best practice methodology, as well as comply with their in-house standards and protocols. However, the client may have specific modelling and documentation requirements and standards which need to be adhered to as part of the BIM deliverables. These should be specified below.

Model standards to be used	XYZ Ltd BIM guide and standard
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Model structure

Describe and produce a simple diagram to show how the model is separated, e.g., by building, by floors, by zone, by model size, by areas and/or discipline.

Model description document (MDD)

Each modelling team should include a model description document (MDD) or similar agreed document that includes crucial information for each model it publishes. The document should describe the contents of the model, any major revisions/changes and explain its purpose and limitations.

Permission and access

The following document management issues should be considered/resolved and a procedure defined for each: permissions/access, file locations, FTP site location(s), file transfer protocol, file/folder maintenance, etc.

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COLLABORATION

Collaboration strategy

Describe how the project team will collaborate. Include items such as communication methods, document management and transfer, and record storage, etc. Discuss if training is required across the project team in the chosen collaboration software and protocols.

Schedule of information exchange

Information exchange	Discipline	Frequency	Date/day
Design Authoring	ALL	Fortnightly	Thursdays, 4pm
3D Coordination	ALL	Fortnightly	Thursdays, 4pm
Cost Estimation	ALL	1 week prior to milestone issues	

Schedule of meetings

Meeting type	Facilitator	Project stage	Required attendees	Required technology	Frequency	Location
BIM requirements kick-off	BIM manager	Pre-design	ALL		One-off	ABC consultant offices
BIM Execution Plan demonstration	BIM manager	Pre-design	ALL		One-off	ABC consultant offices
Design coordination	BIM manager	Design	ALL	Online collaboration portal	Fortnightly	Virtual
Construction over-the-shoulder progress reviews	Discipline Lead BIM Coordinator	Design				
Any other BIM meetings						

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PROJECT DELIVERABLES

In this section, list the BIM deliverables for the project and the format in which the information will be delivered.

BIM Use	From	To	Approximate Due date/ stage	Format	Comments
Cost Estimation	Design consultants	Quantity Surveyor	Concept design/preliminary design/developed design/detailed design/construction design	.xyz/IFC	
Design Authoring	Design consultants	Contractor	Preliminary design/developed design/detailed design/construction design	.xyz/IFC	
Record Modelling	Contractor	Client	Handover	IFC	Ensure that the proper information is contained in this model from the MEA table
3D Co-ordination	Design consultants	BIM manager	Preliminary design/developed design/detailed design/construction design	.xyz/IFC	

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QUALITY CONTROL

Quality control checks

The following checks should be performed to assure quality within models and information, to eliminate errors and achieve desired project outcomes.

These checks are intended to be carried out internally by the relevant Design BIM Coordinator.

Check	Definition	Responsible parties	Project Stage	Frequency
Visual check	See that there are no unintended model components and the design intent has been followed	Design BIM Coordinators/ discipline leads	Design	Ongoing
Interference check	Detect problems in the disciplines model where two components are clashing including soft and hard	BIM Coordinators	Design	Fortnightly, prior to information exchange
Model integrity checks	Ensure integrity of the model aligns with BIM Uses and client's BIM specific modelling and documentation requirements and standards, as set out in Model Standards.	BIM Coordinators / BIM manager	Design	Monthly
Design review	Review that the ongoing development of the model is aligned with the client objectives.	BIM Coordinators / BIM manager	Design	Fortnightly, prior to information exchange
Authoring software warnings		BIM Coordinators	Design	Ongoing

Note: These processes don't replace picking up the phone and talking to each other.

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MODEL ELEMENT RESPONSIBILITIES TABLE

This table assigns responsibilities to Model Elements via an Author (MEA) and defines Level of Development (LOD) to those model elements across project stages.

Legend for model element responsibilities table:

MEA discipline		Level of Development (LOD)	Refer to New Zealand BIM Handbook for definitions
Architecture		100	Conceptual
Structure		200	Approximate geometry
MEP		300	Precise geometry
Other		400	Fabrication and assembly
		500	As-Built

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Project phase	Concept design		Preliminary design		Developed design		Detailed design		Construction design		Operation		Notes
Model element	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	
SPATIAL													
Site boundaries, setbacks		300		300		300		300					
Grids		300		300		300		300					
Levels		300		300		300		300					
Zones		300		300		300		300					
Spaces, rooms		300		300		300		300					
SITE													
Topography		200		200		200		200					
Excavation		200		200		200		200					
Stormwater		200		200		200		200					
Services		200		200		200		200					
Roads		200		200		200		200					
Parking		200		200		200		200					
Paths, paving		200		200		200		200					
Walls, fencing		200		200		200		200					
Soft landscaping		200		200		200		200					

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Project phase deliverable	Concept design		Preliminary design		Developed design		Detailed design		Construction design		Operation		Notes
Model element	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	
SUBSTRUCTURE													
Footings		200		200		200		300					
Retaining walls		200		200		200		300					
Subsoil drainage													
STRUCTURE													
Floor structures		100		200		200		300					
Beams		100		200		200		300					
Shaft openings		100		200		200		300					
Stair & ramp structures		100		200		200		300					
Walls – load bearing		100		200		200		300					
Columns		100		200		200		300					
ENCLOSURE													
Roofing		100		200		200		300					
Cladding		100		200		200		300					
Column claddings				200		200		300					
Curtain walls		100		200		200		300					
Windows		100		200		200		300					

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External doors, openings		100		200		200		300					
Project phase deliverable	Concept design		Preliminary design		Developed design		Detailed design		Construction design		Operation		Notes
Model element	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	
INTERIOR													
Partitions				200		200		300					
Internal doors, openings		100		200		200		300					
Ceilings		100		200		200		300					
Flooring		100		200		200		300					
Balustrading		100		200		200		300					
F, F & E													
Casework, joinery				200		200		300					
Fixtures				200		200		300					
Fittings				200		200		300					
Equipment (non-service)				200		200		300					
Furniture				200		200		300					
Signage				200		200		300					
MECHANICAL													
Plant external						200		200					
Plant internal						200		200					

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Services in risers						200		200					
Louvers						200		200					
Ductwork						200		200					
Registers						200		200					
Pipework						200		200					
Controls						100		100					
Project phase deliverable	Concept design		Preliminary design		Developed design		Detailed design		Construction design		Operation		Notes
Model element	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	
HYDRAULIC													
Plant & equipment						200		200					
Sanitary fixtures						200		200					
Pipework						200		200					
Services in risers						200		300					
FIRE PROTECTION													
Sprinklers						200		200					
Pipework (main)						200		200					
Pipework (branch)						200		200					
Detection						200		200					
EWIS / alarm systems						200		200					

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Hydrants						200		200					
Extinguishers						200		200					
Services in risers				200		200		300					
Project phase deliverable	Concept design		Preliminary design		Developed design		Detailed design		Construction design		Operation		Notes
Model element	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	MEA	LOD	
ELECTRICAL													
Electrical fixtures						200		200					
Power outlets						200		200					
Switch & distribution boards				100		200		200					
Cable trays						200		200					
Lighting						200		200					
Light switches / controls						200		200					
Communications						200		200					
Security						200		200					
Services in Risers				200		200		300					
CONVEYING													
Lifts, escalators		100		200		200		300					

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REFERENCE DOCUMENTS & STANDARDS

The following documents are listed for reference.

Generic title	Applicable reference document/notes	Version
BIM guide and standard	XYZ Ltd BIM guide and standard	V1.0
Client brief	NWT client brief	V1.0
Project BIM Brief	NWT Project BIM Brief	V1.0 1/7/2014



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