BIM BETTER BUILDING PROCESS. BUILDING BETTER PERFORMANCE.

APPENDIX Hi
PROJECT BIM EXECUTION PLAN – EXAMPLE

THE NEW ZEALAND BIM HANDBOOK
2019 THIRD EDITION

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BIM ACCELERATION COMMITTEE

BRANZ Funded by Building Research Levy

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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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.

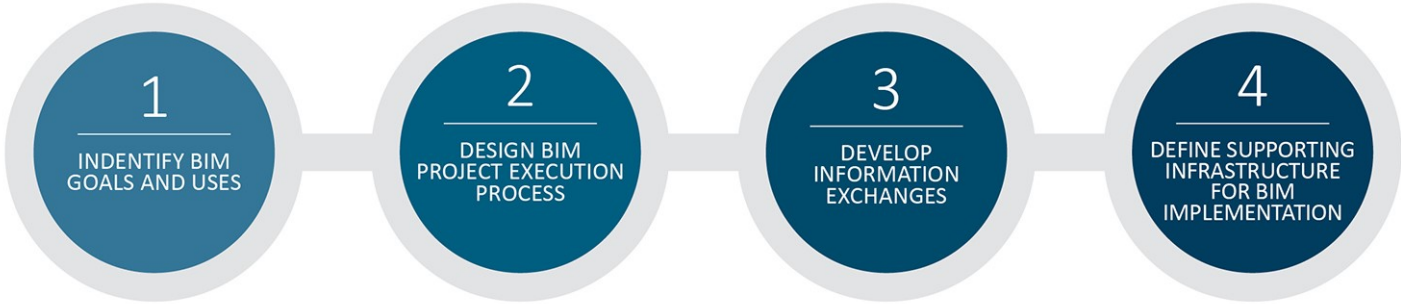
The intent of the BIM execution plan is to provide an outline that will ensure all parties involved are clearly aware of the opportunities and responsibilities associated with projects that implement BIM.

The plan defines why you are using BIM on the project. It sets goals, objectives, and responsibilities, and outlines how the process will be executed through the project life cycle.

The BIM execution plan is a living document and should be developed and refined throughout the project life cycle to ensure the project remains on schedule and meets the briefed requirements.

This BEP template can be used as a framework for the development of a BEP for specific construction project/s.

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 Company	**1/1/2019**

Revision record

REVISION:	DATE:	REVIEWERS:	COMMENTS:
A	1 NOV 2019	XMT	

Project information

PROJECT NAME:	Media Centre
PROJECT OWNER:	Media Company X
PROJECT ADDRESS/LOCATION:	239 Ponsonby Road, Freemans Bay, Auckland 1011
BRIEF PROJECT DESCRIPTION:	Retrofitting and renovation of existing building (159 sq.m.) And construction of new building (260 sq.m.) Attached to the existing one. New media centre will consist of flexible office for 15-20 people and soundproofed studio spaces. Office space to be designed flexible to enable various layouts of the space. High attention to be paid for passive environmental control to achieve minimum building's energy use.
CONTRACT TYPE/DELIVERY METHOD:	Design and Build
CONTRACTOR ENGAGEMENT – INDICATIVE DATE:	01.04.2019
HAS A PROJECT BIM BRIEF BEEN COMPLETED?	Yes

Project schedule

Complete the table below. Include major project milestones over the project lifecycle.

PROJECT PHASE/MILESTONE:	ESTIMATED START DATE:	ESTIMATED COMPLETION DATE:	BIM MEETINGS:
PROJECT ESTABLISHMENT	1 July 2019	1 September 2019	One (approx. 2 hrs)
CONCEPT DESIGN	15 September 2019	15 November 2019	–
PRELIMINARY DESIGN	25 November 2019	25 January 2019	One (approx. 2 hrs)
DEVELOPED DESIGN	10 February 2020	10 April 2020	Two (approx. 2 hrs)
DETAILED DESIGN	15 April 2020	1 July 2020	Four (approx. 2 hrs)
PROCUREMENT	10 July 2020	1 September 2020	–
CONSTRUCTION	10 September 2020	1 September 2021	TBC
HANDOVER	September 2021	November 2021	–
OPERATION	November 2021	NA	–

Key project contacts

List known 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
QUANTITY SURVEYOR	QS	QS Quantity Surveyors	Quentin Quinn	qquin@qqs.com
BIM MANAGER(S)	NA	ABC Consultants	Jim Bim	jim@abc.com
LEAD CONSULTANT	ARC	LC Architects	Lee Brown	lee@lca.com
DISCIPLINE BIM LEADS	STR	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	ARC	LC Architects	Lee Brown	lee@lca.com
	STR	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
OTHER PROJECT ROLES	CONSTRUCT	Construct Contractors	Corey Cuthill	corey@construct.com

Project goals

List client goals and expectations for the project. This table will help define BIM uses required for the project to remain aligned with the project goals.
Refer to Appendix D for BIM uses. Extract this information from the project BIM brief, and other associated documents.

PRIORITY:	GOAL DESCRIPTION – VALUE ADDED OBJECTIVES:	HOW:	BIM USES:
High	Optimisation of design, with respect to overall project value and budget control	Use the 3D model as a visual communication aid, through the use of virtual walk-throughs of facilities and static renders	• Design Authoring • Design Review • Cost Estimation • 3D Coordination
Med	Have a digital asset (3D models) that can be used for future use in facility management	Design and construction team create, develop and update models through to handover	• Record modelling
High	Better coordinated documentation for the contractor	Federated 3D coordination with design and construction team meetings	• 3D Coordination • Design authoring • Design review
Med	Effective communication of the design with key stakeholders in the design phase	Use the 3D model as a visual communication aid, using virtual walk throughs and renders	• Design Authoring • Design Review • Cost Estimation • Phase Planning (4D Modelling)

BIM use responsible parties

The purpose of this table is to identify the responsible parties for BIM on the project. Refer to **Appendix D** for BIM uses.

Client required BIM uses for the project

Extract this information from the project BIM brief, or other associated documents. In the case a project BIM brief does not exist, use the project goals table to help the select BIM uses based on project goals, team characteristics, and capability.

BIM USE:	RESPONSIBLE PARTIES:	COMMENTS:
Design Authoring	ARCH, STRUCT MEP, FIRE	• Ability to create and develop a Building Information Model • Design and construction experience
Design Review	ARCH, STRUCT MEP, FIRE	• Ability to manipulate, navigate and review a 3D model • Strong understanding of how building/facility systems integrate
3D Coordination	ARCH, STRUCT MEP, FIRE	• Ability to manipulate, navigate and review a 3D model • Ability to run clash detection software • Knowledge of building systems
Cost Estimation	QS, CONSTRUCT ARCH, STRUCT MEP	• Ability to identify quantities for the appropriate estimating level upfront • Ability to adjust a cost plan to suit data available in the model over the duration of design phase
Record Modelling	CONSTRUCT	• Ability to manipulate, navigate and review a 3D model • Ability to use BIM application for building updates • Ability to effectively communicate between the design, construction and Facilities Management teams
Phase Planning (4D Modelling)	CONSTRUCT	• 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 likely to deliver benefits. Record this information in the table below.

BIM USE:	RESPONSIBLE PARTIES:	COMMENTS:
Construction System Design	CONSTRUCT	• 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

Information management and exchange

Exchanging models is the basis of the BIM process. All users must understand the level of reliance that they can place on the models they are receiving.

The issuer of a model must clearly define what the model can (and can't) be used for. Model statuses for a project would include:

a) Issued for information – issued for Information only

b) Work in progress – issued for ongoing coordination

Making this information available to others during the development of project will help maximise the benefits of BIM.

The use of the models should be clearly defined in a Model Description Document (MDD). Refer **Appendix J.**

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 the team will use in order to exchange models.

BIM USE:	RESPONSIBLE PARTIES:	SOFTWARE:	VERSION:	INTENDED COLLABORATION FILE FORMAT:
Design Authoring	ARCHTECTURE STRUCTURE SERVICES	Revit	2019	.rvt
Design Review	ARCHTECTURE	Revit	2019	.rvt

	STRUCTURE SERVICES			
3D Coordination	ARCHTECTURE STRUCTURE SERVICES	Revit Navisworks	2019 2019	.rvt/ .ifc/ .nwc
Cost Estimation	ARCHTECTURE STRUCTURE SERVICES QUANTITY SURVEYOR	Revit CostX	2019	.rvt/ .ifc/ .dwfx

Specify a file naming convention for exchanged models, the 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	

Schedule of information exchange

INFORMATION EXCHANGE:	DISCIPLINE:	FREQUENCY:	DAY/ DATE:
Design Authoring	All design disciplines	Weekly or as agreed for each design stage	Thursday C.O.B.
3D Coordination	All design disciplines	Fortnightly or as agreed for each design stage	Thursday C.O.B.

All model exchanges should be accompanied by a Model Description Document (MDD). Refer to **Appendix J.**

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	

Coordination model tolerance schedule

This project will use the coordination tolerances as shown in the table below (this table does not infer design tolerances):

Discipline	Concept Design	Preliminary Design	Developed Design	Detailed Design
Architectural vs other	N/A	~100mm	~50mm	~25mm
Structural vs other	N/A	~100mm	~50mm	~25mm
Mechanical vs other	N/A	~100mm	~50mm	~25mm
Mechanical vs mechanical	N/A	~100mm	~50mm	~25mm

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 must 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

Model structure

Describe and produce a simple diagram to show how the model is separated. E.g. by building, floors, zone, model size, 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, CDE location(s), file transfer protocol, file/folder maintenance, etc.

Collaboration

Ensure the participating parties clearly define each person's role and functions with regard to BIM. Roles and functions are covered in the main body of the BIM handbook.

Describe how the project team will collaborate. Include items such as the Common Data environment (CDE) for managing project information, communication methods, transfer, and record storage, etc.

Discuss project team training requirements for chosen collaboration software and protocols.

PROJECT BASED CDE	XYZ

Schedule of meetings

MEETING TYPE:	FACILITATOR:	PROJECT STAGE:	REQUIRED ATTENDEES:	REQUIRED TECHNOLOGY:	FREQUENCY:	LOCATION:
BIM REQUIREMENTS KICK-OFF	BIM Manager	PROJECT ESTABLISHMENT	Client Project Manager Discipline BIM leads/ Discipline Leads		One-off	ABC consultant offices
BIM EXECUTION PLAN DEMONSTRATION	BIM Manager	PROJECT ESTABLISHMENT	Discipline BIM leads/ Discipline Leads		One-off	ABC consultant offices
DESIGN COORDINATION	Discipline BIM leads/BIM Manager	DESIGN	Discipline BIM leads / Discipline Leads	XYZ software/large screen	Project milestone and/or at agreed intervals	ABC consultant offices
CONSTRUCTION OVER-THE-SHOULDER PROGRESS REVIEWS	Discipline BIM leads	DESIGN	BIM Manager Discipline BIM leads / model element authors		As required using technology such as Skype for Business	ABC consultant offices
ANY OTHER BIM MEETINGS						

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	ARCH, STRUCT MEP, FIRE	QS	Concept design/ preliminary design/ developed design/ detailed design/ construction	.xyz/IFC	
Design Authoring	ARCH, STRUCT MEP, FIRE	BIM Manager	Preliminary design/ developed design/ detailed design/ construction	.xyz/IFC	
Record Modelling	ARCH, STRUCT MEP, FIRE	BIM Manager	Handover	IFC	Ensure that the proper information is contained in this model from the MEA table
3D Co-ordination	ARCH, STRUCT MEP, FIRE	BIM Manager	Developed design/ detailed design/ construction	.xyz/IFC	

Quality control checks

The following checks should be performed to assure quality within models and information, eliminate errors, and achieve desired project outcomes. These checks are intended to be carried out internally by the 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	Discipline BIM leads/ model element authors/ Discipline Leads	Design	Ongoing
Interference check	Detect problems in the disciplines model, where two components clash, including soft and hard	Discipline BIM leads/ model element authors	Design	Fortnightly, prior to information exchange
Model integrity checks	Ensure integrity of the model aligns with BIM uses and a client's BIM specific modelling and documentation requirements and standards, as set out in the model standards	Discipline BIM leads/ model element authors/ BIM Manager	Design	Monthly
Design review	Ensure ongoing development of the model aligns to the client objectives.	BIM discipline leads/ BIM Manager	Design	Fortnightly, prior to information exchange
Authoring software warnings		Model element author	Design	Ongoing

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

Reference documents and 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

The New Zealand BIM handbook

This document is one of a suite of documents forming the New Zealand BIM handbook.
You can download or view the remaining documents here:

http://www.biminnz.co.nz/nz-bim-handbook