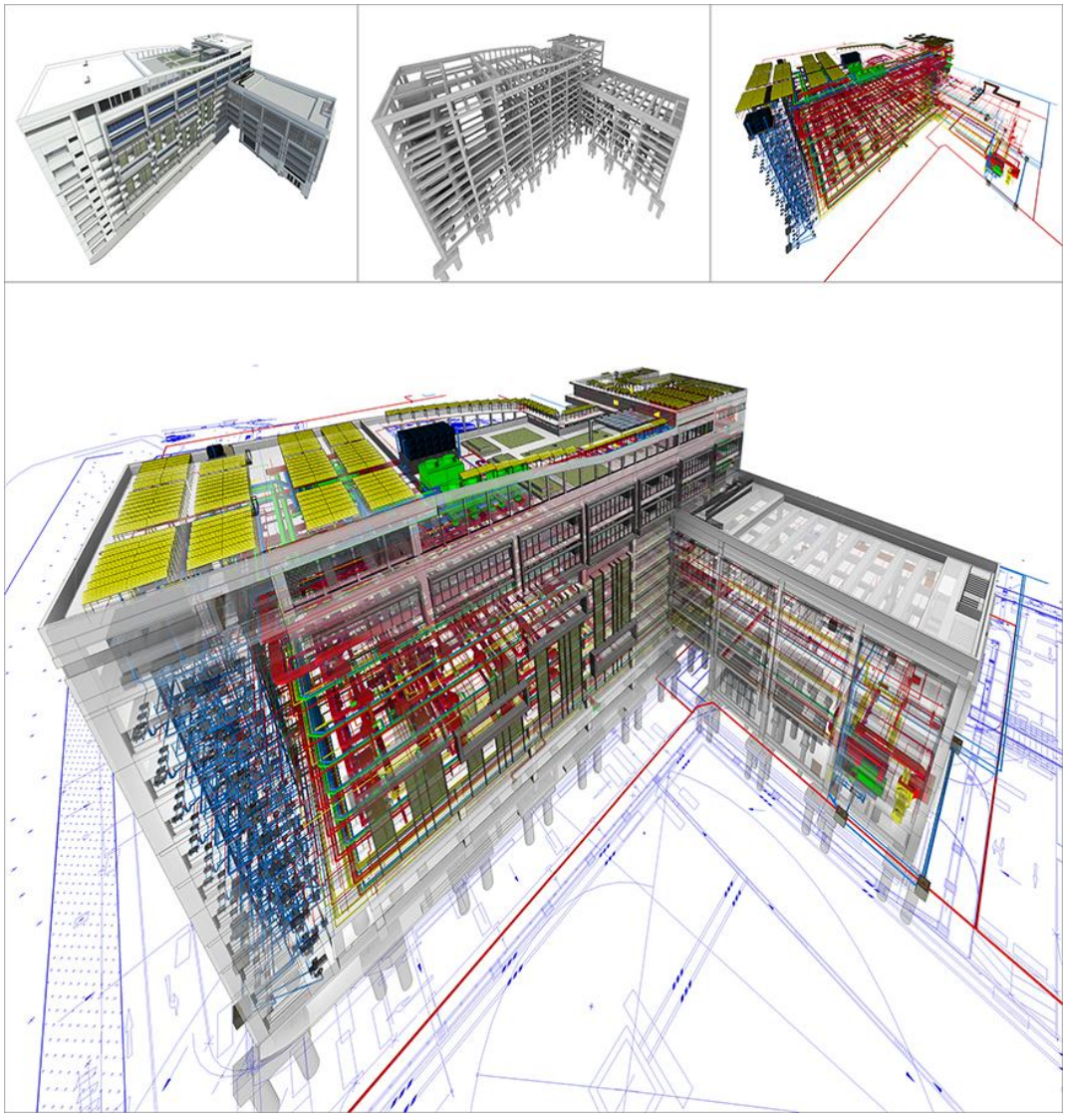
Building and Construction Authority

BIM Essential Guide

For BIM Adoption in an Organization



BCA acknowledges the leadership provided by the BIM Steering Committee in support of the production of the BIM Essential Guides

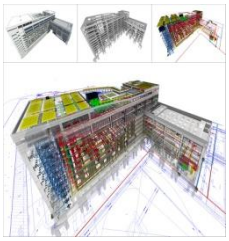
The BIM Essential Guides have been drafted by the Centre for Construction IT on behalf of BCA and the BIM Steering Committee.

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CEO's Message



Dear readers,

Building Information Modelling (BIM) has gained much traction in recent years as digital construction technology that will fundamentally transform the building and construction industry practice in the delivery of an excellent built environment. It is a game changing technology that will improve the construction productivity as well as the level of integration and collaboration across the various disciplines in the construction value chain. It is therefore important for the industry to embrace the technology with clarity.

The BIM Essential Guides are part of the industry's efforts to demystify BIM and to give clarity on the requirement of BIM usage at different stages of a project.

Under the leadership of the BIM Steering Committee chaired by Er Lee Chuan Seng, Emeritus Chairman, Beca Carter, and comprising of leaders in BIM, the BIM Managers Forum has contributed much time and effort to compile the various best practices to make this Guide possible over a short span of time. We would like to thank them for their contribution.

We hope that every BIM user can truly reap the benefits of BIM by integrating it into his/her day-to-day workflow – from feasibility study to facility management. We hope that BIM users can use these guides as a platform to jumpstart their BIM adoption, before they leap to greater heights, innovating and transforming their workflow.

BIM is a journey. We envisage that it will grow with time and will inspire more advanced and innovative use of BIM. I would like to encourage all BIM practitioners to join in this industry effort to grow this Guide into a wealth of BIM knowledge.

Dr John Keung

1 INTRODUCTION

This document aims to provide a quick start guide to help an organisation to jump start its Building Information Modelling (BIM) adoption journey.

The template is modelled after the seven categories of the Singapore Service Quality Framework that helps organisations journey towards business excellence practices in BIM. The seven categories of the Singapore Service Quality Framework are as follows:

- Leadership
- Planning
- Information
- People
- Processes
- Customers
- Results

The organisation's BIM adoption plan should be endorsed by the organisation's senior management and be reviewed and refined regularly to monitor and guide the organisation moving towards successful BIM adoption.

The framework can be adjusted according to the size of the organisation. Recommended essential items for smaller size firms are found with * in the Remarks column of Table 1.1 (see facing page)

1.1 STEP BY STEP QUICK START

STEPS	DESCRIPTIONS	REMARKS
1	Leadership • Involve Senior Management • Set up BIM Committee with clear roles and responsibilities	
2	Planning • Develop BIM Adoption Plan • Define BIM Vision, BIM Goal, BIM Themes, Change Management, Software and Hardware Requirements in the Plan	
3	Information • Define BIM Standard • Define BIM Quality Assurance Checks • Define BIM Information Management	 * * *
4	Process • Define Project BIM Process	 *
5	People and Capability • BIM Competency Map • BIM Training Roadmap • BIM Roles (Project BIM Manager and/or Coordinators)	 * *
6	Customer Engagement • BIM Execution Plan • BIM Conditions	 * *
7	Results • Define KPIs (at project, organization and employee levels)	

2 Leadership

2.1 SENIOR LEADERS

Senior leaders should guide and sustain the organization towards its BIM adoption.

a. They should develop the BIM vision and goals for the organization.

b. They should communicate, demonstrate and reinforce the vision and goals to employees and stakeholders

c. They should provide necessary resources and monitor progress of the programme.

2.2 BIM COMMITTEE

The BIM Committee is set up to support the senior leaders to develop and execute the organisation's BIM adoption programme.

a. The committee should be chaired by a senior leader in the organization.

b. It should involve representatives from the various levels of the organization's structure.

c. Roles and responsibilities of each member should be defined clearly. Examples are given on the next page.

NAME & DESIGNATION	ROLES
Hon Wei **Design Director**	• Leader of the organization's BIM Committee and adoption programme • Manage progress of the adoption programme • Provide resources for the implementation of the programme
Siti **Principal Architect – Key User Champion**	• Identify BIM opportunities in key business processes • Nominate & conduct pilot project • Evaluate results • Incorporate BIM into key business processes
Ramesh **Organization BIM/CAD Manager**	• Set up and maintain organization's BIM Standards • Identify suitable BIM technology / software • Develop BIM training needs and programme
Siew Ling **BIM/CAD Specialists**	• Key resource persons in BIM • Provide mentoring to project BIM teams • Consolidate success stories to produce good practice guides • Facilitate practice sharing workshop • Experiment and evaluate new practices, processes & technology

3 Planning – BIM Adoption Programme

One of the key deliverables of the BIM committee is the development of the BIM adoption programme that aims to propel the organisation from the current "no or little" BIM state to one that BIM is used effectively, innovatively and pervasively in a foreseeable future.

For a start, the organisation's vision and goals of the programme need to be defined by the senior leaders of the organisation. Examples of BIM vision and goals are shown below.

3.1 BIM VISION

Organization's Vision Statement

To be the premier architecture firm in green building design in the region

We stay ahead from our competitions by skill development and technology adoption

BIM Enhancement

To embrace BIM to sharpen our green building design with digital simulation capability in order to provide value-added services to our clients for them to make sound decisions based on quantifiable simulation results.

We plan to implement BIM for all our green building projects by 2015

3.2 BIM GOALS

Identify organisation's goals and objectives that support its vision with BIM enhancement. For each goal and objective, indicate how the achievement is measured within a definite timeframe. Some examples are given on the following page:

BIM GOALS	BIM OBJECTIVES	MEASURABLE KPIs	PROJECTED TIMEFRAME
Ability to perform digital green building simulation using BIM as part of the design process	Build up BIM and associated digital green building simulation capability within each studio	Short term: • Equip first studio with essential capability Midterm: • Extend essential capability to half the studios • Equip first studio with advanced capability Long term: • All studios should attain at least essential capability • More innovative use of BIM for green building design	By Q4 2013 By Q4 2014 By Q4 2015

3.3 ESSENTIAL THEMES

Organization could consider a few essential themes in its BIM adoption programme to provide focus for its adoption. An example is given below:

To encourage continuous **learning and innovation** that supports the achievement of the organisation's vision and goals.

a. Learning focuses on new capabilities. Some possible areas of learning include :
   - New skill set
   - New technology
   - New specialization

b. Innovation focuses on new value creation. Some possible areas of innovation could include:
   - New services
   - More effective process
   - More accurate information

3.4 CHANGE MANAGEMENT

Another important topic to consider in the development of the BIM adoption programme is change management that helps firm migrate from current to future states with less disruption and resistance. An example of change management methodology is shown below.

a. Creating climate for change (3 to 6 months)
   - Define urgency for change - e.g. to meet BIM e-submissions or new project procurement requirements
   - Define clear vision, goals and programme
   - Understand key risks and success factors
   - Formulate change strategies and levers

b. Engaging and enabling the change (6 – 12 months)
   - Communication for buy-in
     - Communicate the mandate for change clearly and frequently
     - Share success stories in practice workshops
     - Solicit and address implementation issues from the ground
   - Enabling actions
     - Provide training and resources
     - Acquire equipments and software
     - Define BIM standards
   - Achieve quick wins – to build momentum of change
     - Use pilot project
     - Reward early movers
     - Set realistic targets

c. Implementing and sustaining the change (12 – 24 months and beyond)
   - Propagation (from project to project or team to team)
     - Set up quick start template for new teams or projects to follow
     - Set up a progression path for teams to develop in-depth knowledge
   - Making it stick
     - Define clear ownership and accountability
     - Set up reward system
     - Incorporate BIM practices as part of the organisation's ISO processes

3.5 BIM ENVIRONMENT (HARDWARE AND SOFTWARE)

This section defines the BIM environment needed to support the organization in delivering a BIM project. Typical BIM environment consists of the following:

a. List of commonly used software for each task.
   - BIM authoring software
   - BIM reviewing software
   - BIM Coordination software
   - Analysis software
   - Others

b. Hardware that can run each software with a sizable model comfortably

c. Document management system or project coordination workspace and protocol to house, manage and share the BIM models created within the organization and with external project partners.

4 Information

4.1 BIM STANDARD

The Organisation's BIM Standard should define clearly the "what" and "how" to create a BIM model at a particular stage of a project to meet a particular objective. One can make reference to the Singapore Essential BIM Guides when developing its BIM Standard by discipline. An example of a BIM Standard content is shown below:

1. Introduction
2. Purpose of this Standard
3. BIM Team Organizational Chart & Roles and Responsibilities (e.g. BIM Manager, Coordinator, Modeller)
4. Project BIM Deliverables
5. Project Server
    - Folder Structure
    - File Naming
6. BIM Project Process & Timeline
    - Single Discipline
    - Multi- Discipline (Internal Collaboration)
    - Multi- Discipline (External Collaboration)
7. BIM Modelling Requirements
    - BIM Authoring Software
    - Project Template
    - Project Coordinates, Levels & Grids
    - File Breakdown
    - Worksets Breakdown
    - Object Creation
    - Good Practices (DO's and DON'Ts)
    - Getting Started
8. Model Content
    - Discipline specific (e.g. Architecture, Structural, MEP, QS, LS, Contractors)
9. Model QA/QC
    - Discipline specific (e.g. Architecture, Structural, MEP, QS, Contraction)
    - Coordination Between Discipline
    - Between Model and Drawing & Schedule
10. File Exchange
    - File format
    - Delivery Method (Internal)
    - Delivery Method (External)
11. Appendices
    - Commonly used BIM Terms
    - BIM References
    - Reference to organization CAD standard

The BIM Standard should also cover the extent of 2D drawings and schedules that can and cannot be derived from the BIM model (according to the readiness of the BIM technology) and what (e.g. installation details and annotation) need to be added.

4.2 BIM QUALITY ASSURANCE

Quality assurance plays an important role in ensuring information produced is of the right quality. Examples of quality control checks can be found below:

- Modelling Validation (visual check)
  - Ensure that the model is created accordingly to the modelling guidelines in the BIM standard
- Dataset Validation (adopt standard objects)
  - Ensure that the dataset are populated with correct data.
- Interference Validation (computer-assisted)
  - Detect any clash between building component using a Clash Detection software
  - Detect sufficient space clearance between building components for installation and maintenance purposes
- Exchange Validation (visual check)
  - Ensure that model is published/received based on the exchange protocol as defined in the project execution plan

4.3 BIM INFORMATION MANAGEMENT

The standard could also contain other information management practices, such as folder structures, file naming, colour scheme, etc. An Example of BIM folders for a particular project is shown on the following page.

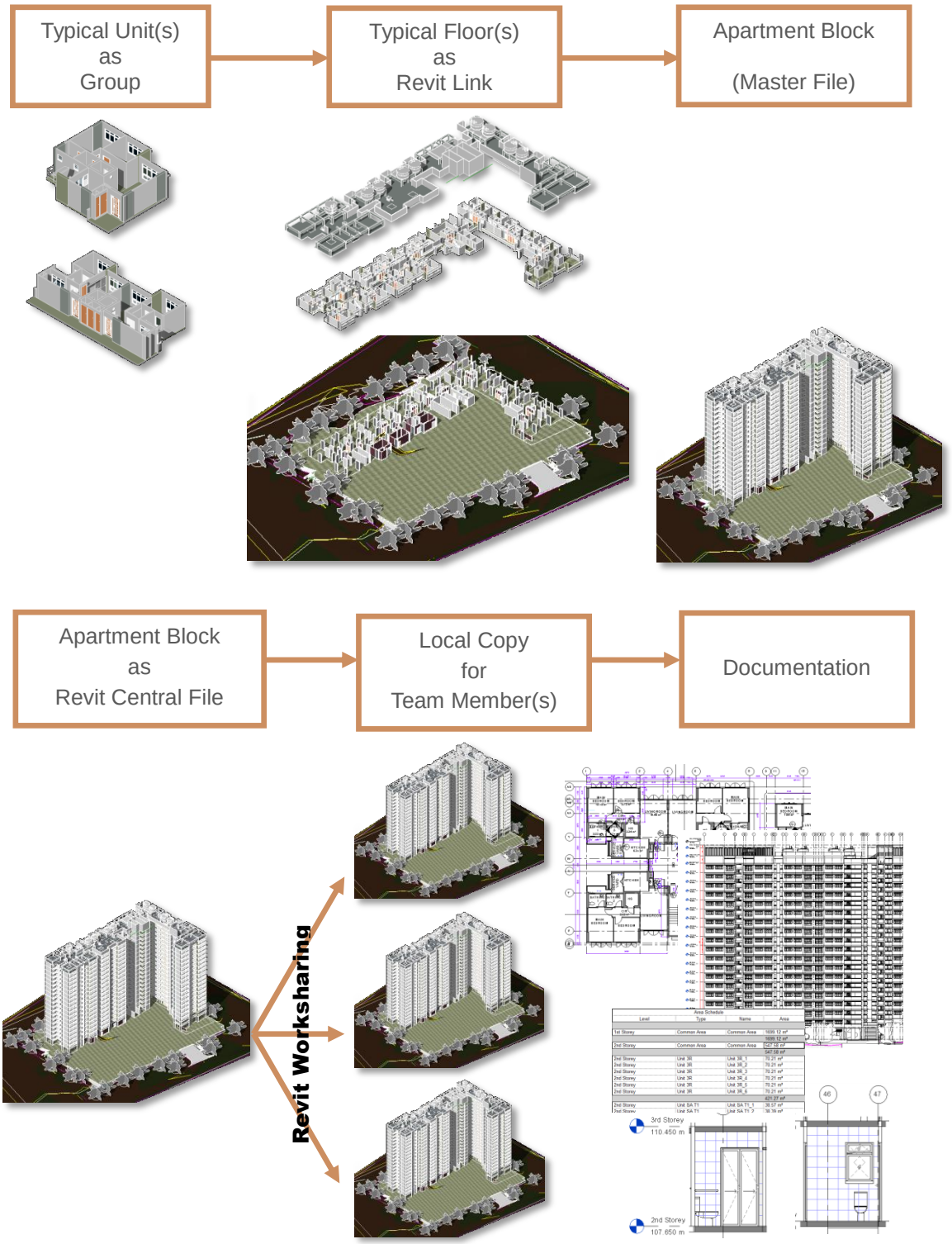
- BIM Execution Plan
- BIM Progression by Stages
  - Conceptual
    - Working
      - Discipline Model
    - Published
      - Discipline Model
      - Coordinated Model
  - Schematic
    - Working
    - Published
  - Design Development
    - Working
    - Published
  - Regulatory Submission
    - Working
    - Published
      - By Agencies
  - Tender
    - Working
    - Published
  - Construction
    - Working
    - Published
  - As-built
    - Working
    - Published
  - Facility Management
    - Working
    - Published
- BIM Coordination Meetings
  - Reports & Resolutions
- BIM Object Library
  - Discipline Objects
- Contractual
  - Addendum
  - RFI
  - Change Orders

An Example of BIM File Naming Convention (based on CP83 and BIM e-Submission Guidelines) is shown below:

PROJECT ID					AUTHOR		ZONE			VERSION		USER-DEFINED
M	L	P	1	_	A	-	0	1	_	A	-	

NAME OF FIELD	INDICATORS	DESCRIPTION
PROJECT IDENTIFICATION		User defined field for the project
AUTHOR	**A-**	Architect
	C-	Civil engineer
	E-	Electrical engineer
	L-	Land surveyor
	M-	Mechanical engineer
	N-	Equipment Supplier
	S-	Structural engineer
	T-	Telecommunications / Signal engineer
	V-	Other disciplines
	X-	Contractor
ZONE (OR BLK)	**NN**	Where, N: zone or block number e.g.: 01 for Block 1 A1 for Zone A1
	--	For all blocks
VERSION (REVISION / SUBMISSION)	**A-**	1st Submission
	B-	2nd Submission
	C-	3rd Submission
USER-DEFINED (OPTIONAL)		User defined code for in-house applications (optional field)

An example of BIM Model Structure (Source: HDB Step by Step Guide V1):



5 Process

5.1 BIM PROCESS FOR PROJECT

The BIM process for a typical project outlines clearly the type of BIM deliverables to be produced at different stage of project. A typical example (see the Singapore MEP Essential BIM Guides) is shown below

STAGE	SUGGESTED DELIVERABLES (MEP ONLY)
1. Preparation & Conceptual Design	a. Understand Project Brief (Client's Requirements) b. Define BIM Execution Plan c. Set up BIM Project Template, coordinate system, grids, level height,
2. Schematic Design	a. Preliminary Model based on architectural Massing structural and site models (identify ceiling height, opening, load bearing structures, services connections on site) b. Determine Design Criteria, Key Service Connections, Services Routes and Plant Room. c. Preliminary MEP Model Layout d. Preliminary MEP Services calculation report e. Schematic Drawings f. Alternate Design
3. Detailed Design	a. Understand & validate Architectural and Structural Models b. Define Zones, Spaces, Services Routes and Plant Room c. MEP Services Calculation Reports (load & sizing) d. MEP Services Model Layout and Detailed BOQ by Trade e. Clash Detection & Resolution Report among different MEP trades (ACMV, plumbing, sanitary, fire protection and electrical) f. Clash Detection & Resolution Report w.r.t. Architectural & Structural models g. Regulatory Submissions h. ender Documents

4. Construction	a. Design Validation Report b. RFI Resolution c. Shop & Working Drawings d. Single Services Drawings (SSD) & Combined Services Drawings (CSD) e. Detailed schedule of materials & quantities
5. As Built	a. As constructed Model & drawings b. Operation & Maintenance Manual (OMM) c. Commission reports
6. Facility Management	a. As built model

6 People and Capability

Building capability is one of the most important aspects of the BIM adoption plan. Organisation could draw up a competency map and a training roadmap to guide its BIM capability building plan. Carry out a stock take of your organization's current BIM skills by listing personnel type, number of employee of each type, and average skill level.

6.1 BIM COMPETENCY MAP

A competency map is blue print that shows the types of skill set to be developed within the organisation in order to meet its BIM goals and objectives. An example of BIM Competency Map is shown below:

SKILL LEVEL	ESSENTIAL LEVEL	INTERMEDIATE LEVEL	ADVANCED LEVEL
Years of Experience	1 – 2 years	3 – 5 years	6 – 8 years
Skills / Knowledge	Domain knowledge: • Architectural, • M&E Engineering, • C&S Engineering, • Quantity surveying, • Land Surveying • Construction Management or • Facility Management BIM knowledge • Concepts of BIM and • BIM applications • BIM values & ROI Software skills in: • BIM Authoring tool	Domain knowledge: • Working experience in actual projects • Specialization in green building design BIM knowledge • National BIM Guides • Organization's BIM Standard • BIM Execution Plan • BIM Quality Checking Software skills in: • BIM Authoring tool	Domain knowledge: • Project lead experience in actual projects BIM knowledge • Facilitating BIM Coordination Meeting • Planning BIM Processes • BIM Legal and Contractual Issues • Organization's adoption plan • BIM Quality Checking Software skills in: • BIM Authoring tool

	• BIM Design Review tool	• BIM Design Review tool • BIM Analysis tool • BIM Coordination tool	• BIM Design Review tool • BIM Analysis tool • BIM Coordination tool • Project workspace
Certification		• Certification in BIM Modelling • BIM Software Certification Courses	• Certification in BIM Management • BCAA Specialist Diploma Degree

A. TRAINING ROADMAP

List the training programmes to be provided to staff, the intended personnel, number of people to be trained, timeframe, and training provider. An example of a training roadmap is given below

TRAINING PROGRAMME	PERSONNEL TYPE	NO. TO BE TRAINED	TIMEFRAME	TRAINING PROVIDER
BIM Awareness	Senior Management	5	Jan 2013	BCA Academy
BIM Management	Principal Architect BIM Manager	5 3	Feb 2013 Feb 2013	BCA Academy BCA Academy
BIM Modelling	Architects	10	Feb – Apr 2013	Software Vendor
BIM Analysis	Draftspersons	20	Feb – Jun 2013	Software Vendor

It is important to note that learning can take place in the following forms:

- formal BIM training courses where new skills are acquired
- mentoring where more experienced staff are paired up to guide the less experience ones
- forum where leaning points are shared or obstacles discussed among practitioners
- good practices where all learning points are documented

Therefore always provides opportunities to allow learning to take place beyond formal training in a continuous manner.

6.3 LIST OF BIM RELATED ROLES

It is essential to understand some typical roles involved in a BIM project. These roles are shown below:

ROLE	RESPONSIBILITIES IN MODEL MANAGEMENT
Project BIM Manager (This role can be played by the lead consultant or BIM specialist appointed by the employer or project manager)	Facilitate the definition and implementation of: • BIM Execution Plan • BIM Goal and Uses • Responsibility Matrix • BIM Deliverables • Delivery Schedules • BIM Modelling Quality Control • BIM Coordination
BIM Coordinator for Consultant	<u>At Design and Construction Stage</u> • Create BIM Design Models and Documentation • Define discipline-specific BIM uses including analysis • Coordinate between BIM modellers, design consultants and cost consultant • Coordinate with contractor and subcontractors • Ensure Modelling Quality Control
BIM Coordinator for Contractor	<u>At Construction Stage</u> • Coordinate with design consultants and sub-contractors • Study tender documents • Review Design Models and Fabrication Models and Drawings • Use BIM for coordination, sequencing, constructability and cost studies, and field use • Create construction and as built models • Ensure Modelling Quality Control

7 Customer Engagement

To effectively participate in any BIM project, an organisation has to understand how to participate in the definition of the BIM Execution Plan (BEP). One can refer to the ***BIM Essential Guide - Quick Start Guide for BIM Execution Plan.***

7.1 BIM EXECUTION PLAN (BEP)

The BIM Execution Plan BEP provides a baseline document, approved by the Employer, to guide the project team in achieving goals set, including BIM deliverables, throughout the project. It specially specifies the roles and responsibilities of project members when using BIM at different stages of a project, and contains details with regard to the BIM deliverables and the process through which the deliverables are created, coordinated, maintained and shared, in order to satisfy a set of project goals. A typical content of a BEP is as follow:

- Project information;
- Project members;
- Project goals & BIM uses for each stages of a project;
- BIM deliverables for each BIM uses,
- Model author and users for each BIM deliverables;
- Model elements, level of details and attributes for BIM deliverables;
- Process for BIM creation, maintenance and collaboration;
- Exchange protocol and submittal format; and
- Technology infrastructure & software used

The BEP is usually defined at the start of the project and can be updated to accommodate new project members or new uses of BIM. All updates should be made with the permission of the Employer or his appointed BIM Manager.

It can also be defined by the client, and made reference from the Principal Agreement via the BIM Particular Conditions (see following page).

7.2 BIM CONDITIONS

All parties in new BIM projects shall incorporate the Particular Conditions for Building Information Modelling ("BIM Particular Conditions Version 2") as a contract document in their respective agreements for services, supply and/or construction for the project. Within this collaboration, model ownership and risk apportionment are expressly addressed. In addition, the BIM Particular Conditions Version 2 requires completion of a BIM Execution Plan.

8 Results

The results of BIM adoption programme should be monitored regularly so that corrective actions can be taken promptly to steer the programme in the right course. A list of typical KPI examples is listed below:

- Project Level
  - % of projects carried out in BIM
  - % project partners involved
  - Extent of project stages (such as conceptual, schematic, detailed design, construction, as-built etc) carried out in BIM
  - Number of additional services offered
  - Accuracy of BIM deliverables (in terms of number of errors)
  - % time delay and cost overrun
- At organisation level – extent of BIM adoption programme implemented
  - Leadership, Planning & Results
  - Information and Process
  - People and Capability
  - Customer Engagement
  - New ways of working
- At employee capability level
  - % of employee trained in BIM
  - % of employee certified in BIM
  - Level of BIM skills (BEP planning, authoring, analysis, collaboration, documentation, customisation) acquired
  - % of BIM skills applied in projects
  - % of employee trained as BIM Managers, BIM Coordinators and BIM Modellers

Each KPI can be measured in terms of output, outcome and impact w.r.t the input. An example of output, outcome and impact for training resources input are as follows:

- Input: training resources
- Output: number of staff trained
- Outcome: extent of project stages conducted in BIM
- Impact: ability to win BIM project contracts

Appendix A – BIM Adoption Programme Template

SECTION 1: OVERVIEW

The intent of this document is to help an organisation plan and map out its BIM Adoption Programme in a framework at the organisation level. This framework will guide and enable the organisation to monitor its BIM adoption progress as they embark on the BIM journey.

NOTE: Examples to assist with the completion of this document are shown in blue within square brackets **[ ]**. The content should be modified accordingly to suit the needs of the organisation as required.

SECTION 2: LEADERSHIP

One of the factors that will determine the success of a BIM Adoption Programme is the support of the organisation's leadership in driving the implementation. A BIM committee should be set up to assist the Senior Leaders to define and execute the BIM Adoption Programme. The committee should involve representatives from as many levels of the organisation as possible.

2.1 BIM Committee

NAME	DESIGNATION	ROLES & RESPONSIBILITIES
[John]	[Design Director]	[• Leader of the organisation's BIM adoption programme • Provide strategic BIM adoption direction]

SECTION 3: PLANNING

This section defines the organisation's vision and goals that the leadership envisage for its BIM Adoption Programme. The key areas of focus in the adoption programme and the methodology for change management to assist the organisation to migrate from the current state of work processes to the BIM way of doing things should also be defined in this section.

3.1 BIM Vision

a) Vision:

[To be the premier architecture firm in green building design in the region]

b) BIM Enhanced Vision:

[Adoption of BIM enhances our offering with computer-aided green building design services to allow our clients to make sound decisions based on quantifiable digital simulation results.]

3.2 BIM Goals

BIM GOALS	BIM OBJECTIVES	MEASURABLE KPIs	TIMEFRAME
[Ability to perform digital green building simulation using BIM as part of the design process]	[Build up BIM and associated digital green building simulation capability within each studio]	[Short Term: • equip first studio with essential capability]	[By Q4 2013]

3.3 Essential Themes (Focus Areas)

Theme	Key Areas of Focus
[Innovation : Doing thing differently]	[- new processes - new software used]

3.4 Change Management

Change management methodology :
[Creating climate for change (3 to 6 months)
Enabling and engaging change (6 to 12 months)
Making change stick (12 to 24 months)]

3.5 BIM Environment (Software and Hardware)

a) Software and Hardware:

BIM Model/Task	Software	Version	Hardware Specifications
[Energy analysis]	[Analysis software]		

b) Document Management and Project Coordination Workspace

SECTION 4: INFORMATION

This section defines the "what" and "how" to create a BIM model at a particular stage of a project to meet a particular objective.

4.1 BIM Standards

a) BIM Elements

Model Type	Elements
[Site model]	[Refer to Singapore BIM Guide: Appendix A – Typical BIM Elements by Discipline]

b) Modelling Process

[Refer to Singapore Essential BIM Guides]

4.2 BIM Quality Assurance

Type of Checks	Purpose of Check
[Modelling Validation (visual check)]	[Ensure that the model is created according to the modelling guidelines in the BIM Standard]

4.3 BIM Information Management

BIM Standards such as folder structure, file naming conventions, model structure etc. to be established for a BIM project can be specified in this sub-section as appropriate.

a) Folder Structure:

b) File Naming Convention:

_____

_____

_____

c) Colour Schemes:

_____

_____

_____

SECTION 5: PROCESS

This section specifies the type of BIM deliverables to be produced at different stages of a project.

5.1 BIM Process for Project

Stage	Suggested Deliverables
[Preparation & Conceptual Design]	[a. Understand Project Brief (or Client's Requirements) b. Define BIM Execution Plan c. Set up BIM Project Template, coordinate system, grids, level height]

SECTION 6: PEOPLE AND CAPABILITY

This section defines the organisation's BIM competency roadmap for its staff and the training programmes to be provided to build up the BIM capability of its staff.

6.1 BIM Competency Map

Skill Level	Essential Level	Intermediate Level	Advanced Level
[Years of Experience]	[1-2 years]	[3-5 years]	[6-8 years]
[Skills / Knowledge]	[Domain knowledge: BIM Knowledge Software skills in:	[Domain knowledge: BIM Knowledge Software skills in:	[Domain knowledge: BIM Knowledge Software skills in:
[Certifications]	[BIM Software Certification Courses]	• [Certification in BIM Modelling • BIM Software Certification Courses]	• [Certification in BIM Management • Specialist Diploma Degree]

6.2 Training Roadmap

Training Programme	Personnel Type	No. to be Trained	Timeframe	Training Provider
[BIM Awareness]	[Senior Management]	[5]	[Jan 2013]	[BCA Academy]

SECTION 7: CUSTOMER ENGAGEMENT

This section sets out the documents, guidelines or standards that the organisation will follow in order to participate effectively in any BIM project.

7.1 BIM Execution Plan (BEP)

7.2 BIM Conditions

SECTION 8: RESULTS

This section identifies the KPIs to monitor under the BIM Adoption Programme so that corrective actions can be taken promptly to steer the programme in the right course.

Level	KPI & Measurement Metrics	Target
[Organisation Level]	[People and Capability: • Input: Training resources • Output: Number of staff trained • Outcome: Extent of project stages conducted in BIM • Impact: Ability to win BIM project contracts]	
[Project Level]		
[Individual Level]		

This guide is part of the BIM Essential Guide Series

BIM Essential Guide	FOR EACH BIM PROJECT		FOR EACH ORGANIZATION
	WITHIN EACH DISCIPLINE	ACROSS MULTIPLE DISCIPLINES	ALL DISCIPLINES
For Architectural Consultants	●		
For C&S Consultants	●		
For M&E Consultants	●		
For Contractor	●		
For BIM Execution Plan		●	
For BIM Adoption in an Organization			●

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