

Appendix C - Detailed List of Core Competencies of BIM Co (HKIA) / BIM Co

Minimum Level of Competency:

Level 1(L1) : General appreciation of the subject and an understanding of how the subject may affect, or integrate with other subjects.

Level 2 (L2): Knowledge and understanding of the subject and its application.

Level 3 (L3): Ability to perform the subject independently or under supervision.

Level 4 (L4): Ability to perform the subject without supervision and advise others.

-	Core Subject	L1	L2	L3	L4
1. BIM Initiation	<i>1.1. BIM Concept</i>				
	1.1.1 BIM definitions and terminology	✓			
	1.1.2 The difference between 2D CAD, 3D CAD and BIM	✓			
	1.1.3 Concept of BIM as whole project & whole estate perspective	✓			
	1.1.4 Value and benefits of adopting BIM	✓			
	1.1.5 Value of BIM for AM & FM	✓			
	1.1.6 Collaborative working in BIM	✓			
	1.1.7 Limitation of BIM	✓			
	1.1.8 Challenges within existing working practices & how BIM addresses these		✓		
	1.1.9 How BIM affect the current practice in AECO industry		✓		
	<i>1.2. Local & Global Contexts, BIM standards and guidelines</i>				
	1.2.1 Local BIM standards & resources		✓		
	1.2.1.1 CIC BIM Standards		✓		
	1.2.1.2 Government BIM standards & resources		✓		
	1.2.2 Global context in BIM development	✓			
	1.2.3 Global BIM standards & resources		✓		
	1.2.3.1 ISO 19650		✓		
	1.2.3.2 BIM FORUM LOD Specification		✓		
	1.2.3.3 OpenBIM		✓		

-	Core Subject	L1	L2	L3	L4
2. BIM Software and Technologies	<i>2.1. BIM Software</i>				
	2.1.1 Overview of industry leading BIM software/applications		✓		
	2.1.2 Characteristic, strength and limitation of industry leading BIM software		✓		
	2.1.3 Versions and file formats		✓		
	2.1.4 Interoperability across industry leading BIM software		✓		
	<i>2.2. Technologies</i>				
	2.2.1 Cloud platform		✓		
	2.2.2 Laser scanning		✓		
	2.2.3 Photogrammetry		✓		
	2.2.4 GIS		✓		
	2.2.5 Application of smart devices		✓		
	2.2.6 VR/AR/MR		✓		
	2.2.7 VDC	✓			
	2.2.8 RFID	✓			
	2.2.9 Gaming technology in BIM	✓			
	2.2.10 Robotics	✓			
	2.2.11 Automation	✓			
	2.2.12 API	✓			
	2.2.13 MiC	✓			
	2.2.14 Indoor positioning	✓			
2.2.15 Upcoming Trend	✓				

-	Core Subject	L1	L2	L3	L4
3. BIM Uses and Processes	3.1. – Client Pre-tender Project Stage				
	3.1.1 Client Information Model (CIM)		✓		
	3.1.1.1 Organisational Information Requirements (OIRs)		✓		
	3.1.1.2 Asset Information Requirements (AIRs)		✓		
	3.1.2 Employers Information Requirements (EIR)		✓		
	3.1.3 Coordinate project technology & systems requirement & integration		✓		
	3.1.4 Understand BIM scope and information deliverables for Architectural Discipline		✓		
	3.1.5 Understand contract & consultancy requirement	✓			
	3.2. – Definition & Design Stage				
	3.2.1 BIM Execution Plan developed by supply chain		✓		
	3.2.1.1 Understand Pre-contract BIM Project Execution Plan		✓		
	3.2.1.2 Understand Post-contract BIM Project Execution Plan		✓		
	3.2.2 Coordination in fulfilling BIM uses in planning & design stages listed in CIC BIM Standards			✓	
	3.2.3 Skill on conceptual modeling in BIM Platform and spatial programming and be able to coordinate with others to carry out the task			✓	
	3.2.4 Skill on modelling methodology for architectural schedules and drawing production			✓	
	3.2.5 Project Information Model (PIM) data exchanges and validation			✓	
	3.2.6 BIM PIM file setup				✓
	3.2.6.1 BIM origin point & orientation setup				✓
	3.2.6.2 Model division				✓
	3.2.6.3 Modelling methodology				✓
	3.2.6.4 Project-based industry and BIM standards				✓
	3.2.7 Direct BIM related meetings			✓	
	3.2.7.1 Internal meeting			✓	
	3.2.8 Basic understanding of parametric design tools		✓		
	3.2.9 Carry out open BIM workflow and open BIM inter-operability				✓
	3.2.10 Modelling for GBP production and statutory compliance checking				✓
	3.2.11 Modelling for production of tender drawings and documentation				✓
	3.2.12 Basic understanding of environmental plug-in and performance analysis software		✓		
	3.2.13 Understand the limitation of clash detection and adequately utilize the same to assist design coordination				✓

-	Core Subject	L1	L2	L3	L4
3. BIM Uses and Processes	<i>3.3. – Construction Stage</i>				
	3.3.1 BIM Execution Plan developed by supply chain		✓		
	3.4.1.1 Pre-contract BIM Project Execution Plan		✓		
	3.4.1.2 Post-contract BIM Project Execution Plan		✓		
	3.3.2 Coordination in fulfilling BIM uses in construction & handover stage listed in CIC BIM Standards			✓	
	3.3.3 Adequately request and utilize contractor's 4D simulation from BIM model for programme planning, progress verification and record			✓	
	3.3.4 Verify contractor's submitted drawings generated from BIM models			✓	
	<i>3.4. – Handover Stage</i>				
	3.4.1 As-built information verification			✓	
	3.4.2 Manage data transfer from PIM to Asset Information Model (AIM)			✓	
	<i>3.5. – Operation & Maintenance Stage</i>				
	3.5.1 Update Assets Information Model (AIM)			✓	
	3.5.2 Roles, responsibilities and authorities for maintaining the AIM		✓		

-	Core Subject	L1	L2	L3	L4
4. Digital Information Management, Collaboration and Integration	<i>4.1. Digital Information Management</i>				
	4.1.1 Value of data & how it should be managed		✓		
	4.1.2 Interoperate data/information to facilitate cross- disciplinary and cross-BIM platform collaboration			✓	
	4.1.3 Limitation of BIM software in relation to information management		✓		
	4.1.4 Coordinate level of development in the context of graphics and information in different stages		✓		
	4.1.5 Coordinate level of integration of digital information into asset & facility management		✓		
	4.1.6 Coordinate the process and quality of information exchange			✓	
	4.1.6.1 IFC/BCF/XML...etc.			✓	
	4.1.6.2 COBie			✓	
	<i>4.2. Common Data Environment (CDE)</i>				
	4.2.1 Overview of CDE		✓		
	4.2.2 Overview of various CDE platform		✓		
	4.2.3 Setup of CDE			✓	
	4.2.4 Assessment of CDE			✓	
	4.2.5 Management of CDE		✓		
	4.2.6 Limitation of CDE	✓			
	<i>4.3 – Data Quality Control & Assurance across various stages</i>				
	4.3.1 System checking			✓	
	4.3.2 Model audit			✓	
	4.3.3 Model checking			✓	
	4.3.4 Audit reporting			✓	