홍콩 국가공인 BIM 자격제도 및 교육체계 소개

Introduction to BIM Certification and Accreditation Schemes in Hong Kong

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홍콩 건설산업에서의 본격적인 BIM 도입은 한국 등 타 국가보다 다소 늦은 2018년부터 정부주도로 시작되었지만, 이후 공공 및 민간 건설 시장에서의 BIM 활용은 괄목한 만한 성장세를 보이고 있다. 이와 같은 BIM 도입의 성장세와 더불어 증가하는 BIM 전문가의 수요에 발맞추어 정부 산하 기관인 Construction Industry Council (CIC)은 2019년 CIC BIM 자격 및 인증 제도 (CIC BIM Certification and Accreditation Scheme)를 신설하고 체계적인 BIM 전문가 양성에 기여하고 있다. 본 기고문에서는 홍콩의 BIM 자격 및 인증제도와 관련된 자격요건, 인증체계, 교육내용 등을 살펴봄으로서 홍콩 BIM 전문가 양성 체계의 시사점을 찾아보고자 한다.홍콩의 BIM 전문가 자격 및 인증 제도는 국가 공인 기관 (CIC)의 주도로 이루어지며, 한국과 같이 자격 시험을 통한 인증이 아닌 자격 요건 및 제출 서류에 대한 인증 위원회의 주관적인 평가 및 대면 인터뷰로서 인증이 결정이 된다. 또한 CIC에서는 BIM Manager 또는 BIM Coordinator로서 갖추어야할 핵심 역량을 체계적으로 정의하고 요구 역량 수준을 설정함으로써 이를 평가 기준 및 교육 커리큘럼 개발에 활용하고 있다. 최근 홍콩 정부에서는 BIM 활용이 의무화된 공공공사 수행에 있어서 CIC BIM 자격을 갖춘 전문가의 참여 또한 의무화함에 따라 그 수요가 지속적으로 증가할 것으로 예상된다.

1. Introduction

As Hong Kong transforms into a smart city, infrastructure and redevelopment projects lie at the core of the engineering profession's evolving priorities. To align with the city's shift toward smart initiatives, engineers are increasingly adopting Building Information Modeling (BIM) to advance Hong Kong's engineering capabilities. Recognizing BIM's potential to enhance construction efficiency, the 2017 Policy Address mandated that all consultants and contractors working on major capital works projects—those with estimates exceeding HK$30 million and commencing design in 2018 or later—adopt BIM for design and construction.

Reflecting the growing demand for BIM expertise, the Construction Industry Council (CIC), a statutory body representing the sector, launched the CIC BIM Certification and Accreditation Schemes in 2019. These initiatives aim to verify the competency of BIM practitioners and ensure the quality of local BIM training programs. The certification scheme initially focused on applicants seeking recognition as BIM Managers, while the accreditation scheme targeted training providers offering BIM Manager courses. In March 2020, the CIC expanded the scope of these schemes by introducing Certification for BIM Coordinators and Accreditation for BIM Coordinator Courses.

This article provides an overview of the CIC BIM Certification and Accreditation Schemes1, focusing on the two key certification programs: BIM Managers and BIM Coordinators.

2. CIC BIM Certification and Accreditation Schemes

To ensure construction professionals possess the requisite skills and competencies in BIM, and to guarantee the quality and relevance of BIM courses in the market, it became critical to establish standardized frameworks: a certification system for BIM practitioners and an accreditation system for BIM training programs. In response, the CIC introduced its BIM Certification and Accreditation Schemes, designed to validate the competency of BIM professionals and ensure the rigor of local BIM education.

The definitions and roles of BIM experts can vary across countries and organizations, often requiring specialized expertise tailored to specific contexts. Broadly, a BIM Manager oversees organization-wide BIM implementation and technology integration, while a BIM Coordinator focuses on project-level BIM execution. The CIC's certification scheme aligns with this distinction, defining roles similarly. To standardize qualifications and course design, the CIC outlines core competencies (CC) for BIM Managers and Coordinators, which include academic qualifications, practical experience, and tiered competency levels (see Table 1).

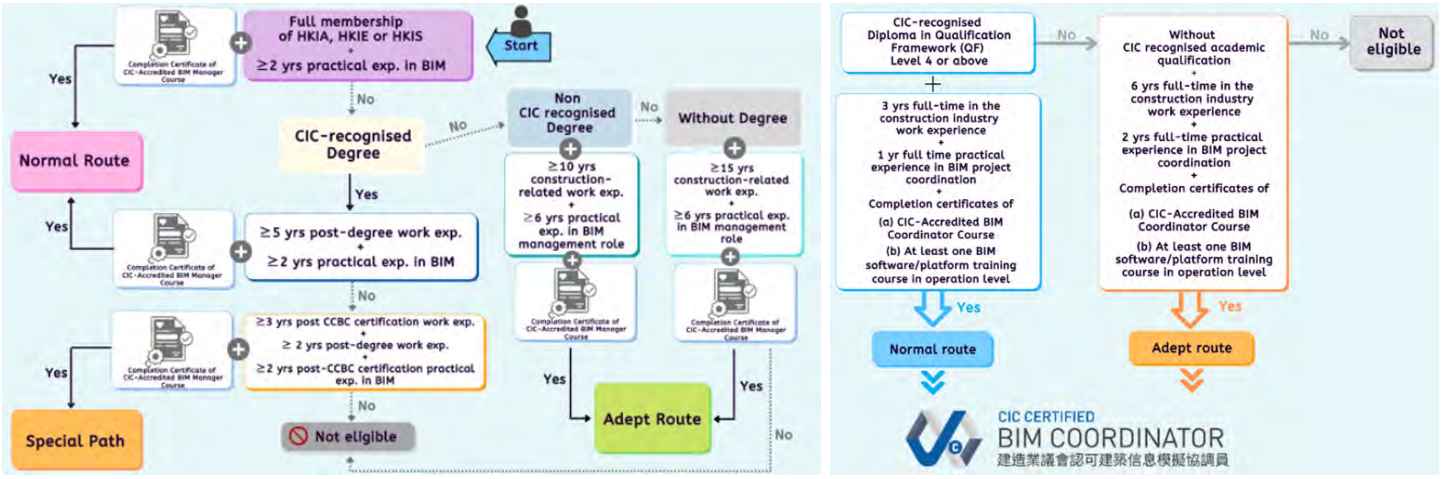
1 Please note that the information in this article is obtained and summarized mainly from https://www.bim.cic.hk/en/certification_and_accreditation.

<table>
<tr><th></th><th>BIM Manager</th><th>BIM Coordinator</th></tr>
<tr><td>Assessment Criteria</td><td>• CIC recognized professional qualification (e.g., full membership of HKIA, HKIE or HKIS)
• At least 2 years of practical BIM experience
• Successful completion of CIC-Accredited BIM Manager courses</td><td>• A diploma (or equivalent) in Qualifications Framework (QF) Level 4 plus 3 years of full-time relevant work experience
• At least 1 year of practical BIM experience
• Successful completion of CIC-Accredited BIM Coordinator courses</td></tr>
<tr><td>Core Competencies (CC)</td><td colspan="2">• CC1 – BIM Initiation: Ability to describe BIM concept definitions and scope, BIM standards and guielines in the Hong Kong and global contexts.
• CC2 – BIM Software and Technologies: Ability to operate BIM software and the modelling process, and describe current and upcoming technologies.
• CC3 – BIM Uses and Processes: Ability to understand BIM uses, apply BIM software applications, and to execute and administer the responsible BIM tasks for individual or cross-disciplinary BIM project coordination.
• CC4 – Digital Information Management, Collaboration and Integration: Ability to execute and administer the operation of a common data environment and data quality control system for effective use and sharing of digital information in a BIM project.
• CC5 – Communication Skills: Ability to demonstrate effective interpersonal and communication skills, such as meetings, report/training material writing, etc.
• CC6 – Commercial and Contractual Aspects: Ability to describe commercial and financial issues of BIM as well as BIM-related contractual issues.</td></tr>
<tr><td rowspan="2">Required Level of Competencies</td><td>CC1: Level 2
CC2: Level 2
CC3: Level 4
CC4: Level 4
CC5: Level 4
CC6: Level 2</td><td>CC1: Level 2
CC2: Level 3
CC3: Level 3
CC4: Level 3
CC5: Level 3
CC6: Not applicable</td></tr>
<tr><td colspan="2">Level of Competency
• Level 1 – Appreciation (A): A general appreciation of the subject is required, as well as an understanding of how the subject may affect, or integrate, with other subjects.
• Level 2 – Knowledge (K): A knowledge and understanding of the subject and how it is being applied.
• Level 3 – Experience (E): The subject should be performed independently or under supervision.
• Level 4 – Ability (B): Perform the subject without supervision and be competent to advise others.</td></tr>
</table>

Table 1 Assessment Criteria and Core Competencies for BIM Manager and BIM Coordinator

For applicants who does not have the required academic qualification or practical experience, the scheme provides alternative paths for applying certifications such as Adept Route or Special Path as shown in Figure 1. For example, for application of BIM managers, the applicant requires a CIC-recognized professional qualification2 (e.g., HKIA, HKIE or HKIS) or a degree accredited or recognized by a CIC-recognized professional body in architecture, engineering, surveying, building or construction, or equivalent, plus 5 years of relevant post-degree experience. The applicants who do not have a CIC-recognized professional qualification, but have CIC-recognized degrees with insufficient work experience can choose a special path after having 2 year of post-BIM Coordinator certification practical experience in BIM. Even for the applicants who do not meet these criteria, they can consider to apply through an Adept Route if he or she has sufficient work experience in the industry or BIM. Similarly, there is an Adept Route for the applicants of BIM Coordinators.

2 Professional certification similar to professional engineers or registered architects in South Korea



(a) BIM Manager (b) BIM Coordinator

Figure 1. Application Routes for BIM Manager and BIM Coordinator

3. Processing and Assessment of Applications for Certification

The major difference of BIM certification between Hong Kong and South Korea is that assessment of applications in Hong Kong relies on subjective review on application documents and interview by the CIC BIM Assessment Panel. The applicants for BIM Managers or BIM Coordinators require to submit an online application form in CIC BIM Portal (www.bim.cic.hk) with relevant documents including certified true copies of academic qualification certificates, evidence of completing CIC-Accredited BIM courses, a curriculum vita and a portfolio of BIM work examples. In particular, the applicants for BIM Managers need to submit a competency statement, of between 1,500 and 2,500 words, to demonstrate the applicant's practical experience in BIM and English writing skills (the 6 core competencies required for a BIM Manager are given).

Upon receipt of an application, the 'Construction Digitalisation Department' of CIC will assess the completeness of the documents submitted and will request the applicant to provide further details to substantiate the application, if needed. The application will be regarded as withdrawn if the applicant fails to provide the necessary details within 3 months from the date of request made by CIC. The CIC BIM Assessment Panel (BIMAP) will review the content of the submitted documents, and if considered to be satisfactory, will invite the applicant to attend an interview. The purpose of the interview is to assess whether the applicant possesses the core competencies and practical experience required for a BIM Manager or a BIM Coordinator. Upon completion of the assessment, BIMAP will make a recommendation to the BIMCAB for approval or disapproval. The certification status of a BIM Manager or a BIM Coordinator shall be valid from the date of granting the certification status up to the end of that calendar year. It is expected that the application process will take, after receiving all necessary documents, around 4 to 6 months in normal circumstances. The application process consists of 3 stages: (a) documents verified by Construction Digitalisation Department of CIC, (b) assessment or interview assessment performed by BIMAP after reviewing the submitted documents, (c) approval/disapproval by the CIC Certification and Accreditation Board (BIMCAB). The Construction Digitalisation Department of CIC will send a renewal reminder to the CIC-Certified BIM Managers or Coordinators on a yearly basis at least 3 months prior to the date of expiry of their existing certification. To maintain the competencies of certification holders, CIC requires at least 12 hours of BIM-related Continuing Professional Development (CPD) in the past year for certification renewal.

4. CIC-Accredited Courses

The applicants of BIM Managers or BIM Coordinators should complete CIC-Accredited Courses specifically designed for each certification. To ensure that construction professionals have appropriate skill levels and competency in using BIM technology, and that the scope and quality of BIM courses provided in the market meet the needs of the industry, it was important to establish a certification body for BIM personnel and an accreditation body for BIM courses in Hong Kong. CIC has introduced the BIM Certification and Accreditation Schemes to ascertain the competency of BIM personnel and the quality of local BIM training courses. Under the scheme, CIC defines learning outcomes and content of the courses, and course providers can open certified courses upon successful application of the accreditation by CIC. As of February 2025, there are 22 BIM Manager Courses and 32 BIM Coordinator Courses accredited by CIC in Hong Kong.

The curriculum of these courses align with required core competencies set by CIC. For example, Figure 2 shows the list of core subjects of BIM Manager courses. For CC1 – BIM Initiation, the BIM Managers require to have Level 2 competency (Level 2 – Knowledge (K): A knowledge and understanding of the subject and how it is being applied.), and thus core subjects aim to provide appropriate training or lectures to the applicants upon successful completion of subjects. The total hours of courses could vary depending on course providers, but in general 40 - 50 hours of courses need to be taken to meet the application requirements.

-	Core Subject		L1	L2	L3	L4	Minimum curriculum hours		Assessment		
							Lecture	Workshop	Assignment	Description	Examination
1. BIM Initiation	*1.1. BIM Concept*						1	0	1	Assignments can be in quiz, worksheet…etc. It can be arranged so that it won't occupy any curriculum hour.	Can be only one examination for the whole course
	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 in the whole life cycle of a built asset	✓								
	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		✓							
	1.2. Local & Global Contexts, BIM standards and guidelines						1	0			
	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 and collaborative formats		✓							
							2	0	1		

Figure 2. List of Core Subjects of a BIM Manager Course

5. Conclusions

Most of the public clients support the use of BIM personnel under CIC's certification scheme. More companies require CIC-certified BIM personnel, generating a surge demand for BIM personnel. The CIC BIM Certification Scheme has transformed Hong Kong's construction landscape by creating a pipeline of qualified BIM professionals, aligning with government digitalization goals, and raising industry standards. As demand for BIM expertise grows, the scheme will remain pivotal in ensuring Hong Kong's construction sector remains innovative, efficient, and globally competitive. Recently, the Development Bureau of the Government of the Hong Kong Special Administrative Region has announced a policy related to the adoption of BIM technology in capital projects, specifying the need for establishing a BIM team that includes a CIC-Certified BIM managers as a team leader and BIM coordinators as members. For practitioners, obtaining certification is no longer just an option—it's a strategic career investment.

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서준오 교수는 미국 미시간대 토목공학과에서 박사학위를 취득하였고, 2016년부터 홍콩이공대에 부임하여 현재 부교수를 담당하고 있다. BIM, 컴퓨터 비전, 웨어러블 센서, 가상현실 기술 등 건설 IT를 이용한 건설작업자의 생산성 및 안전과 관련된 다양한 연구를 수행하고 있다. 현재 BIM 관련 정부산하 조직인 CIC-BIM Network의 멤버로 활동하며 홍콩 건설산업에서의 BIM 활성화를 위해 기여하고 있다.

Prof. JoonOh Seo is an associate professor in the Department of Building and Real Estate, Hong Kong Polytechnic University. He obtained his PhD degree in Civil Engineering (construction management) from the University of Michigan in the United States. His research focuses on the use of various computing and IT approaches including BIM, computer vision, wearable sensors, AR/VR for construction safety and health. He is currently serving as a member of CIC-BIM Network that aims to facilitate the adoption of BIM in Hong Kong.