





Competition Brief

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1. General Brief

- 1.1 The CIC BIM Competition 2019, refer as the "Competition", is organised by the Construction Industry Council (CIC), located at 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon, Hong Kong.
- 1.2 This document contains the design brief, competition detailed requirements, submission deliverable requirements, guidance, assessment scoring criteria, awards and prizes, terms and conditions defined for the Competition.
- 1.3 All the information is meant for the use of this sole Competition only and shall not be used for any form of reference in actual design or construction project in future, if any, for the particular site.
- 1.4 The CIC shall not be held liable for any consequences, losses or damages which may arise or result from any misuse by any parties or reliance made on its information for any purposes in future.

2. Introduction

2.1 Background of the Competition

The Competition aims to draw industry attention and encourage collaboration on BIM adoption. Participants will be given project design requirements to develop a **Digital Design & Construction Centre (DDCC)** for the CIC.

2.2 Objective

To promote the practical usages of BIM through collaborative and competitive learning approach, both in academia and construction industry.

- 2.3 Two Categories
 - (1) Tertiary (post-secondary) Students Category: Only full-time students can participate, each institution can have more than 1 team. (Please refer details in 8.1); and
 - (2) Open Category: team-base submission.
- 2.4 Team Size: 3 to 5 people from minimum 2 disciplines (e.g. Architecture and Engineering)

2.5 Schedule

(1) Tertiary Students Group

Date	Activities
28 January 2019	Open for Registration
26 February & 2 March 2019	Competition Briefing and Seminar
8 March 2019	Deadline for Registration
April 2019	Hands-on Trainings
1 June 2019	Submission Deadline for 1st Round Competition
15 June 2019	2nd Round Onsite Competition (9 teams selected to compete onsite within 12 hours)
16 June 2019	2nd Round Onsite Competition 9:00 am – 12:00 noon: Team presentation to judge 3:00 pm – 4:30 pm: Award Ceremony

(2) Open Group

Date	Activities
28 January 2019	Open for Registration
8 March 2019	Deadline for Registration
4 May 2019	Submission Deadline for Competition
16 June 2019	3:00 pm – 4:30 pm: Award Ceremony

3. Competition Details and Requirements

The project information stated below is intended for the competition only.

3.1 Background

The construction industry has been facing the challenges of high construction costs, labour shortage and declining productivity in recent years. The DEVB is collaborating with the industry in actively promoting the "Hong Kong Construction 2.0", by advocating innovation, professionalism and rejuvenation of the industry as well as encouraging adoption of technology and innovative construction methods, such as promoting the use of Building Information Modelling (BIM) technology, assisting the industry in establishing large-scale, highly automated steel reinforcing bar prefabrication yards, and taking the lead in piloting Modular Integrated Construction (MiC) in public projects.

3.2 The Theme

The theme of the competition is the design of the **DDCC** for promoting, learning and applying the use of digital technologies to enhance design, productivity, sustainability, safety and quality of the construction industry in Hong Kong.

3.3 The Site

The proposed site is located in Kowloon Bay where it is currently occupied by the Hong Kong Institution of Construction (HKIC). This competition client brief assumes that the site will be vacated for the development of a new building to succeed the design concept and type of facilities for the DDCC.

The site is roughly rectangular in shape with size about 6,820 m² measured about 124m x 55m). It is classified as a Class B site, zoned for Government / Institution or Community (G/IC) use. The maximum building height is 40m above Principal Datum which refers to functional floors, water tanks and lift machine rooms on roof floors are to be excluded. The site is assumed to be flat with an average 4.5mPD on ground level. In accordance with the constraints and the Building (Planning) regulations, the site coverage is 77.5%.

Successful registered participants will be given a base drawing file of the boundary area of the proposed site.

(Note: A 2D CAD drawing in .DWG format indicating the site boundary and the basic layout of the site surrounding context will be provided by the CIC.)

3.4 Design Challenge

The design challenge is to create a contemporary building icon for the **DDCC** showing exemplary construction technology well fit into its surrounding.. Emphasizes will be made on creative idea and innovative design approach that the proposed space and facilities could be used effectively for learning and sharing knowledge of the digital technologies and also served as the collaboration platform for demonstrating how the use of digital approach to address HK Construction 2.0.

3.5 Collaboration approach

The approach to the competition is design through collaboration that requires the participants to demonstrate how they collaborate to design with the adoption of BIM tools and process. The participants shall generate the design through maximize usage of computational approach for design

& optimization, engineering & analysis, constructability and satisfy sustainable requirements, such as using ambient energy with carbon reduction facilities and meet various statutory requirements (see 3.7 Other Relevant Design Information). They shall also demonstrate their communication skills through the deliverables showing how effective they can deliver and illustrate the design concept, features and unique selling points of their proposal to the assessment panel and the audiences.

3.6 The Program

The program of the project is to provide a concept design of the new Centre with variety of spaces and facilities for exhibition, learning & sharing, business & consultation, recreational and catering, etc. and the like. The Centre will accommodate a minimum of 1,000 students, 120 staff and 200 visitors' capacity. The Gross Floor Area (GFA) of the proposed DDCC is estimated to be 30,000 m² with the provisions of functional space, amenities, vehicular and pedestrian circulation, services areas and parking spaces.

The identified technologies that could be applied in the construction industry include BIM, GIS, big data, laser scanning, 3D/4D Virtual Reality (VR), 3D printing, Photogrammetry by UAV (Unmanned Aerial Vehicle), Artificial Intelligence (AI), cloud computing, Internet of Things (IoT), digital fabrication, robotics & automation, supply chain management, etc.





Figure: Location of the Site in Kowloon Bay

The general spatial & technical requirements are proposed as follows:

	Space / Facilities	Approx. Area m2 (each), allow ±5% variation	Qty	Features / Assumptions
General	Lounge / Reception	600	1	Reception, foyer gathering & seating areas
Amenity	& seating areas			Lounge area for 70 - 100 users
	Exhibition & Gallery	400	1	General display area
Academic	Office & Meeting	700	2	General administration & support staff,
& support Staff	rooms			academic full-time / part-time staff and meeting, cater for 120 staff
	Board Room	150	2	Executive meeting
Workshops / Labs	Large Workshops	1,000	8	Include external construction space for MiC, large 3D printing, robotic automation, 3D fabrication, laser cutters, drones, etc. Provisions should allow enough headroom for hoisting equipment, large components, such as modular panels, structural components, etc.
	Laboratories / Workshops	50-100	20	Different zones for various technologies, such as CAVE, VR, Immersive Studio, RFID, laser scanning, R&D, etc.
	Computer Labs	100	8	R&D, simulations, AI, mobile applications
Lectures	Lecture Theatres	400	4	For moderate size lectures
	Class Rooms	100	20	Teaching & learning facilities
	Multi-Purpose Hall	800	2	For large seminars & conference
Learning &	Information	1,000	2	Collections, reading, library facilities
Teaching Support	Resources Library			(include individual study tables, computer workstations, quick access terminals, service counters)
	IT/Computer Server Room	100	2	Computer equipment, data processing
	Print Rooms	50	2	Printing materials
Amenities	Cafe	200	1	Cafeteria, internal & external seating
	Canteen	500	2	Dining hall, kitchen
Back of House	Back House Storage	*	*	Storage space for equipment Building components -structural & modular panels
	Toilet & changing	*	*	Adequate provisions
	Medical Room	50	1	For emergency treatment with first aid facility
	Circulation Space	*	*	Horizontal & vertical, lifts, hoisting equipment
	Water tanks, plant / switch rooms, etc.	*	*	Provided and located as appropriate
	Open Display Areas	*	3	Hoisting equipment, space for flying drones
	Landscape Area	*	*	Planting, landscape furniture

Space / Facilities	Approx. Area m2 (each), allow ±5% variation	Qty	Features / Assumptions
Parking Space	N/A	30	Visitors carpark
Loading Dock	*	5	Loading Dock – Deliveries for materials & equipment

Asterisk (*) means as appropriate

3.7 Other Relevant Design Information

The following relevant design information shall be referred as part of the design requirements:

- 1. For the **Outline Zoning Plan**, please refer to the *Kowloon Planning Areas No. 13 & 17 Draft Ngau Tau Kok & Kowloon Bay, OZP No. S/K13/29*
- 2. For MTR Protection Zone, please refer to MTR internet at https://www.mtr.com.hk/en/corporate/operations/protection_boundary.html
- 3. Emergency Vehicular Access (EVA) Code of Practice for Fire Safety in Buildings Buildings Department; Cap. 123F Building (Planning) Regulations 41D Emergency Vehicular Access
- 4. Car Parking Provisions: The parking provision should follow the recommendation of Hong Kong Planning Standards & Guidelines (HKPSG) and the Transport Planning & Design Manual (TPDM)
- 5. Loading & Unloading arrangement Buildings Department PNAP No:APP111- Design of Car Parks and Loading / Unloading Facilities
- 6. Traffic Noise The proposed design should comply with the noise standard stipulated in the HKPSG and the guideline published by the Environmental Protection Department.

4. Submission and Deliverable Requirements

- 4.1 Tertiary Students Group Round 1 and Open Group
 - (1) A max. 10 pages A4 reports in both .doc & .pdf format, include an executive summary or abstract and the most representative images of the design such as floor plans and perspectives for illustration. Please refer to the Template provided (Document: BIM Competition Report Template.docx);
 - (2) A max. 20 pages (Tertiary Students Group) and 30 pages (Open Group) Powerpoint slides in ppt or pptx format. Please refer to the Template provided (Document: BIM Competition Presentation Guide Template.pptx);
 - 4 nos of A1 Posters with at least 200dpi in .jpg or .png, layout in portrait format. Please refer to the Template provided (Document: BIM Competition Submission Poster Template.pptx);
 - (4) A max. 2.5 mins (Tertiary Students Group) and 3 mins (Open Group) multimedia in .avi or .mpeg format;
 - (5) BIM models in native format, the models shall include all geometries, building and element information, drawing sheets, views, images, schedules;
 - (6) 10 nos of drawing sheet in AO paper size in PDF format, they shall include the layout plan and sections of the design illustrating the overall master planning, architectural, structural and MEP designs; and
 - (7) A verifiable script in Dynamo, Grasshopper, Generative Component or other computer language scripting applied, if any; in the Competition to showcase computational design, engineering, analysis and optimisation.
- 4.2 Tertiary Students Group Round 2 (Onsite competition Format)
 - (1) To incorporate CIC's design changes for onsite competition, such design changes requirements and details will be announced on the day of Round 2 competition;
 - (2) Onsite update of models and production of required output and PPT slides in 12 hours (9:00 am to 9:00 pm), presentation will be held on the next day (9:00 am 12:00 noon) and presentation sequence will base on draw lots;
 - (3) A max. 20 pages Powerpoint slides in .ppt or .pptx format (an update on top of those to be submitted in Round 1);
 - (4) 4 nos of A1 Posters with at least 200dpi in .jpg or .png, layout in portrait format (an update on top of those to be submitted in Round 1);
 - (5) BIM models in native format, the models shall include all geometries, building and element information, drawing sheets, views, images, schedules (an update on top of those to be submitted in Round 1);

- (6) 10 nos of drawing sheet in AO paper size in PDF format, they shall include the layout plan and sections of the design illustrating the overall master planning, architectural, structural and MEP designs (an update on top of those to be submitted in Round 1);
- (7) A verifiable script in Dynamo, Grasshopper, Generative Component or other computer language scripting applied, if any; in the Competition to showcase computational design, engineering, analysis and optimisation (an update on top of those to be submitted in Round 1); and
- (8) Presentation for 15 mins with Q&A by panel of judges for 5 mins.

4.3 Online Submissions

- (1) Self-created a google account and store the requested deliverables in the google drive, and email the shared google drive link by the stipulated time (HK time) to bim@cic.hk.
- (2) Submission Date and Time: Registration will be opened for both groups from 28 January, 2019 and latest by 8 March, 2019 (deadline for registration), unless waiver granted by the CIC. Successful registration will be notified via email by the CIC.

5. Guidance and Support

- 5.1 Briefing with seminar (for both tertiary students and open)
 - (1) Proposed Time: Feb 2019
 - (2) No. of Times: 2 times
- 5.2 Hands-on Training
 - (1) Proposed Time: Apr 2019
 - (2) No. of Times: 2 times

6. Assessment Scoring Criteria

- 6.1 Scoring criteria
 - (1) Tertiary Students Group

Scoring Criteria	%			
1 st Round				
Use of Information (statutory and constructability compliance)	25			
Computational Design, Engineering, Analysis and Optimisation	25			
Creativity, Innovation & Technologies	25			
Communications Skill	25			
TOTAL	100			
2 nd Round				
1 st round score	20			

Use of Information, Flexibility & Responsiveness	30
Collaboration & Teamwork	20
Communications Skill	20
Creativity, Innovation & Technologies	10
TOTAL	100

(2) Open Group

Scoring Criteria	%
Use of Information	25
Computational Design, Analysis and Optimisation	25
Creativity, Innovation & Technologies	25
Communications Skill	25
TOTAL	100

7. Awards and Prizes

7.1 Tertiary Students Group

7.2			
Prizes			
First Prize	Plaque + Certificate A Chance to Participate in an Overseas BIM Event		
Second Prize	Plaque + Certificate		
Third Prize	Plaque + Certificate		
Max. 6 Merits	Plaque + Certificate		
All	E-Certificate of Participation E-Certificate of Attended Training & Seminar		

7.2 Open Group

Prizes		
First Prize	Plaque + Certificate	
Second Prize	Plaque + Certificate	
Third Prize	Plaque + Certificate	
Max. 6 Merits	Plaque + Certificate	
All	E-Certificate of Participation	

8. Terms and Conditions

By participating in the Competition, each team shall make a registration to participate in the Competition, refer as the "Participating Team", and each Team Member unconditionally accepts and agrees to comply with and abide by the Terms and Conditions in the Client Brief and the decisions of CIC, which shall be final and binding in all respects.

8.1 Registration

- (1) No registration fee is required. The registrants are solely responsible for their own expenses in preparing all submissions and deliverable.
- (2) Eligibility (Tertiary Students Group): The participants shall be studying a full-time undergraduate or postgraduate program in a registered tertiary institution in Hong Kong as of the 31 January 2019. For overseas students, only of those who hold a valid Hong Kong Identity card is eligible for the participation. Each school may register more than 1 team.
- (3) Eligibility (Open Group): Each organisation may register for more than 1 team.
- (4) Same person is restricted to participate in 1 team only.
- (5) Each Participating Team shall have 3 to 5 members (including the team leader).
- (6) The staff of the CIC and their families are not allowed to participate in the Competition.
- (7) Each Participating Team is encouraged to attend the briefing with seminars and hands-on training, if any, organised by the CIC or its representative or sponsor.
- (8) The Participants are required to update the CIC for replacement or update on members and to submit the new name list latest by the above registration deadline for registration.
- (9) Only the registered team members who completed the full submissions to the Competition are qualified to receive the electronic certificates of participation.
- (10) The CIC has the final decision on the eligibility of the participants and reserves the right to reject any Participant who does not meet the eligibility criteria.
- (11) The CIC reserves the final decision on the Competition and has the right to cancel and/or modify any terms and conditions at any time in the Competition without prior notice.
- (12) The CIC reserves the final decision on the Competition and has the right to cancel or change the awards and other arrangements for the Competition without prior notice.
- (13) The participants shall bear full legal and related responsibilities arising from any possible breach of intellectual property rights in respect of their registration and competition, and shall indemnify the CIC and other concerned parties against any claims and liabilities arising from any such breach.

- (14) All participants who submit registration to the Competition, agree to assign the intellectual property rights of their designs to the CIC on promotion, exhibition, demonstration and training purposes both locally and internationally.
- (15) If a participant is found to have disposed to a third party, such as by assignment, transfer or provision as security, or is making registration procedures, etc., for all or any part of the intellectual property rights or any other rights concerning the submitted registration after the submission, the submission will be made invalid.
- (16) All works must be original works of the participant. The registration will not be shown in other competitions or published. Participants are required to indicate that they are not infringing upon the rights (including design rights and copyright) of the submission.
- (17) Any teams are subject to investigations regarding originality and eligibility for Intellectual Property Rights, design rights or copyright registration. If they do not comply with the requirements, the CIC has the sole discretion to disqualify and forfeit the prizes involved without any liability to the selected participants or any other persons, and other Participating Team may be selected as the winner.
- (18) Participants are required to agree to the CIC's publication of their name and authorise the CIC to collect, process and use their personal data for the event's liaison and promotion. All materials are kept strictly confidential except for the above purposes.
- (19) If any participant provides incorrect, incomplete or inaccurate information, or violates any registration terms or conditions of the Competition, the CIC has the final decision to cancel such participant's qualifications and reserves the right to withdraw the relevant awards.

8.2 Pre-Competition

- (1) The Participating Teams shall complete the Competition at their own premises for the first round of the Tertiary Students Group, and the Open Group.
- (2) For the second round of the Tertiary Students Group, the Participating Teams shall bring along their own computers and software, they are advised to take all necessary precautions to ensure that the Competition areas, equipment and machines are safe for use by the team members. The CIC shall not be held responsible for any accidents, damages or mishap that may happen to the Participants during the Competition.
- (3) Participants may use any Building Information Modelling (BIM) authoring software or tools. It is recommended that the BIM authoring software or tools and other supporting analysis / simulation software or graphic and presentation tools for the Competition to be OpenBIM compliant including the support of import and export files in Industry Foundation Classes (IFC) format.
- (4) Participants will be notified through email if any changes incurred on submission or presentation time and venue.
- (5) The event will be cancelled if a No. 8 typhoon signal or above is hoisted or the black rainstorm warning signal is raised three hours prior to the original start time of the event. The event will be then re-scheduled to the next available date.

8.3 During Competition

- (1) All Participants must comply strictly with all terms and conditions of the Competition defined by the CIC. The Judges and CIC reserves the rights to disqualify any Participant if he/she suspects, in its sole discretion, that the Participant did not follow any terms and conditions.
- (2) Failure by the Participant to comply with instructions given by the Judges or CIC, or Participants caught in cheating and not producing genuine works, may also incur loss of score. Continuous violation of any terms & conditions, may result in suspension or termination from the Competition.
- (3) The participant shall report to the CIC / Judges as soon as possible, if any grievances. Appeals after the Competition will not be entertained. The Judges' decision shall be final.
- (4) For the tertiary student group, any participants from the shortlisted team must inform the CIC as early as practicable if he/she could not participate on the day of the second round competition. No replacement of any team member is allowed due to whatever reasons. The same full team shall participate the second round competition for the best result however, minimum one member of a team can still proceed the second round competition. The participants shall bring along their own computers with all necessary software and tools with legal licenses to the competition venue for the completion of the competition. Any illegal stuffs such as software licenses are prohibited. The competition venue with power supplies will be provided by the CIC. Internet connection will not be provided by the CIC for the second round competition. The participants shall arrange and provide their own internet connection if there is a need.

8.4 Assessment and Judging

- (1) The submissions are assessed based on the assessment scoring criteria.
- (2) The results of the Competition will be decided by judging panel and are final. There is no mechanism to appeal or object.
- (3) The judging panel will be composed of representatives of the CIC and the industry BIM experts.
- (4) The panel of Judges shall abstain from evaluating a team where there may be conflict of interest issues. In such a case, the chief judge to be elected by the panel shall make the final decision.
- (5) Assessment shall not be done in the presence of the Participants.
- (6) If any stated prizes are unavailable, the Sponsor reserves the right to substitute one or more items, in its sole and absolute discretion. No prize is exchangeable, transferable, or redeemable for cash.

8.5 Post-Competition

- (1) All submissions will not be returned, and the participant agrees to authorise the CIC to modify, use, reproduce, publicly display or display the registration on the Internet or other media for promotional purposes without prior obtaining the participant's agreement or pay royalties to them.
- (2) The CIC shall retain and hold exclusive rights for promotion, exhibition, demonstration and training purposes both locally and internationally. The exclusive rights include Intellectual Property rights, Design rights, Patent, Trademark, Copyrights, media rights, overall deliverables, including but not limited to the BIM models, posters, reports, multimedia, scripts, materials and projects created and submitted for the CIC BIM Competition 2019.
- (3) All decisions made by the CIC and Judges are final. No correspondence or appeals shall be entertained.
- (4) The top three prize winners and the merit winners of both groups may be invited for joining in CIC's coming events and activities.