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Development Bureau
Technical Circular (Works) No. 1/2025

Adoption of Building Information Modelling for Capital Works Projects in Hong Kong

Scope

This Circular sets out the policy and requirements on the adoption of Building Information Modelling (BIM) technology.

2. This Circular applies to works either by government staff, consultants or contractors.

Effective Date

3. This Circular takes effect on **1 February 2025**

Effect on Existing Circulars and Circular Memoranda

4. This Circular supersedes DEVB TC(W) No. 2/2021.

Background

5. In its meeting in April 2013, Works Policies Coordination Committee (WPCC) endorsed the proposal to adopt an incremental strategy in using BIM technology in public works projects. Pilot projects with relatively complex building and/or structural works, and of different nature (such as water/sewage treatment plant, various building projects, etc.) were selected for trial with a view to obtaining more information on the performance of the technology in public works projects in various aspects.

6. In 2014, WPCC endorsed the proposal to promote wider use of BIM technology in different stages of public works projects of any nature, scale or complexity and explore the use of BIM technology for asset management so as to enable staff of Works Departments (WDs) from senior management to frontline staff to appreciate the benefits of the technology and acquire the hands-on experience. WDs continued to provide training to their staff from introductory level to advanced level to establish a pool of colleagues capable of building up and administering BIM models.

7. The Government is firmly committed to the promotion and adoption of BIM technology in capital works projects with a view to enhancing the design, construction, project management, asset management and improving the overall productivity of the construction industry. In this connection, DEVB TC(W) No. 7/2017 was issued to require consultants and contractors to use BIM technology when undertaking design of major government capital works projects from 2018 onwards. Subsequently, DEVB TC(W) No. 18/2018 was also issued to mandate some BIM uses relating to construction planning (4-D) and cost estimation (5-D) so as to promote wider use of BIM technology in public works projects. In 2019, DEVB TC(W) No. 9/2019 was issued to further extend the scope of mandatory BIM uses, among other aspects, to certain applications in investigation, feasibility and planning stage, design for digital fabrication as well as sustainability evaluation (6-D). To further foster adoption of BIM technology in public works projects, DEVB TC(W) No. 12/2020 was issued in 2020 to extend the scope of mandatory BIM uses to the applications relating to asset management, surveying of underground utilities, engineering analysis, 3-D control and planning, etc.

8. DEVB TC(W) No. 2/2021 was issued to include the enhancement of BIM workflow, requirements for adoption of Common Data Environment, BIM data harmonization and information security of project data. Moreover, memo on the updates of the DEVB TC(W) No. 2/2021 was issued in June 2023 to outline our target on making BIM models contractually binding and adopting common data collaboration platform for BIM, continue our BIM capacity building and enhance organization, training and sub-contracting requirements in consultancy agreements and construction works contracts.

9. Superseding DEVB TC(W) No. 2/2021 with endorsement by WPCC in 2024, this Circular provides overall updates on the implementation requirements for BIM adoption, especially on stipulating the requirements and implementation of including BIM models as part of tender information and make them contractually binding, with a view to further uplifting the quality of BIM models and effectiveness in BIM adoption.

Policy

10. Capital works projects with project estimates more than **$30 Million** shall use BIM technology. The policy is applicable to projects in the investigation, feasibility, planning, design or construction stages in the Capital Works Programme irrespective of the modes of delivery as detailed in the ensuing paragraphs. For entrustment works, sub-vented capital works projects and works that are undertaken by private parties but will be handed back to the Government for maintenance, the BIM adoption policy is covered in paragraph 20.

Road Map on BIM Adoption for Government Projects

11. To reap more benefits from BIM application, DEVB has developed a BIM road map in 2020 for enhancement of BIM uses from fundamental BIM uses in project management at design and construction stages to more sophisticated BIM uses on digital fabrication, asset management, smart city planning and adopting BIM for e-tendering so as to apply BIM to the whole project life cycle and smart city development. The intended BIM uses at various stages are described in the ensuing paragraphs.

Making BIM Model Contractually Binding

12. With an aim to further uplifting the effectiveness of BIM adoption, the initiative of making BIM models contractually binding could assure the quality of BIM models for tendering. For construction works tenders with BIM adoption to be invited on or after 1 April 2025, the design BIM models shall form part of tender and shall be contractually binding including the parts of BIM models of the proposed works corresponding to the information on the 2-dimensional tender drawings, while MEP installations, existing site conditions and attributes involving proprietary products, etc. will serve as reference[1]. To facilitate the implementation of the initiative, WDs should consider to suitably adjust the timeframe of tender preparation and documentation of the projects to allow sufficient time to cope with the new initiative to meet their genuine project need with due consideration to the available manpower resource and programme. The detailed requirements of contractually binding of BIM models and standard tender provisions are set out in **Annex 3** and **Annex 4** of the TC.

Investigation, Feasibility and Planning Stage

13. Normally, a BIM model with detailed information may not be required at the early stage of a project or has little reference value at subsequent stages. BIM model is normally not required in the stage of preparing Technical Feasibility Statement (TFS), unless WDs consider there is merit in specific situation such as continued use of the BIM model in TFS in subsequent investigation and design stages. WDs should adopt mandatory BIM uses in certain applications in the investigation, feasibility and planning stage after TFS has been approved in accordance with the Financial Circular No. 7/2017.

Design Stage

14. The use of BIM technology is mandatory for all projects to be designed under Design and Construction consultancy agreements (DC) or Investigation, Design and Construction consultancy agreements (IDC), or by in-house resources. The design BIM models for relevant capital works projects shall be prepared for including in tenders and contractually binding as required in paragraph 12.

[1] For individual cases, project offices could make its discretion to make the specified attributes in 3D BIM models contractually binding in tender documents with due consideration to the certainty of information.

Construction Stage

15. All tenders for construction contracts are required to stipulate use BIM technology for carrying out the projects. For the avoidance of doubt, this requirement applies also to Design-Build and Design-Build-Operate projects.

Digital Fabrication

16. Digital fabrication is the process for digitalising the construction details as parametric objects in the BIM model for mass customised components so as to make the design and fabrication processes more efficient and can be done offsite, such as Prefabricated Steel Reinforcing Bar Products, Modular Integrated Construction (MiC), Design for Manufacture and Assembly (DfMA) and Multi-trade Integrated Mechanical, Electrical & Plumbing (MiMEP), etc.

Asset Management

17. In addition to enhancing productivity and reducing risks and costs of capital works projects, BIM technology can also optimise operation and maintenance. WDs are required to establish their departmental asset information requirement and management strategy in order to leverage the information contained in the BIM models to facilitate asset management over the whole asset lifecycle. WDs are required to agree with their maintenance agents of the built assets on a standard practice for handover of as-built BIM models and documentation which contain the essential asset information requirements (AIR) to facilitate effective asset management. BIM models in open BIM format for asset management should be prepared. The need for handover of BIM models in native BIM format is subject to the requirement of maintenance agents.

Smart City Planning

18. BIM models contain rich information of built assets which can facilitate the integration between BIM and Geographic Information System (GIS) as well as the development of Common Spatial Data Infrastructure (CSDI).

19. Therefore, WDs shall provide their design and as-built BIM models to LandsD to facilitate the development of the BIM Data Repository. In addition, for all technical & fee proposals of consultancy agreements or construction works tenders with BIM adoption invited from 1 January 2022

onward, WDs should ensure that the design and as-built BIM models are prepared in accordance with the DEVB BIM Harmonisation Guidelines[2], which have also been aligned with the Construction Industry Council (CIC) BIM Standards.

BIM Adoption for Entrustment Projects, Sub-vented Projects and Private Projects to be Handed Over to the Government

20. This BIM adoption policy is also applicable to entrusted projects within the Government departments. For projects entrusted to organisations outside the Government (Airport Authority, MTR Corporation Limited, Hospital Authority, private developers, etc.), sub-vented projects and private projects to be handed over to the Government, the scope of BIM implementation should be aligned with the BIM adoption/implementation policy of the organisations. The as-built BIM models of the concerned parts to be maintained by WDs shall follow the requirements according to the BIM Harmonisation Guidelines and AIR of the respective WD[3].

Mandatory BIM Uses

21. A number of BIM uses have been identified and a list of mandatory and optional BIM uses set out in **Annex 1** should be implemented in capital works projects. To keep up with the fast BIM technology development, the BIM uses in works projects will be reviewed and updated from time to time.

Exemption

22. On exceptional grounds such as serious contractual implications, substantial impact on project delivery or projects of little technical content[4], the

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2 The DEVB BIM Harmonisation Guidelines set out the information requirements and standards for BIM models and objects to facilitate efficient information exchange amongst Works Departments and Lands Department as promulgated by the DEVB TC(W) No. 8/2021.

3 WDs at D2 level or above may exempt the requirement of following the AIR of the respective WD for entrusted projects, sub-vented projects and private projects to be handed over to the Government.

4 The exemption applies to a project, the main scope of which has little technical content such as in-pipe condition survey & rehabilitation, operation of public fill banks & test laboratories, paving and painting works, slope maintenance works, greening works, maintenance/improvement works under term contracts, procurement of vehicles, etc.

Heads of WDs may exempt the adoption of BIM technology or part of the mandatory BIM uses as required under this Circular. WDs shall appropriately keep records on such decision and inform DEVB of the approvals for exemptions with detailed justifications.

BIM Workflow

23. BIM is more than an authoring tool to create 3D digital representation of the designs. BIM is the backbone of construction digitalization. To reap the full benefits of BIM, project teams are required to ensure that the BIM models are properly developed at the design stage for facilitating their utilisation in the subsequent stages and the whole project life cycle, and make good use of the BIM data/model for collaboration among project team members with an aim to improving productivity, reducing abortive works, enhancing construction safety and/or optimising operational efficiency. In this respect, project teams shall conduct regular BIM collaboration meetings among project team members so as to ensure that any changes/updates in the design and construction stages are to be timely and properly made to the BIM models.

24. For the charting of BIM adoption effectiveness in public works projects by monitoring the BIM Key Performance Indicators (KPIs) since 2020, we found that WDs have gained more knowledge in BIM and their confidence level in adopting BIM is increasing throughout the past years. Besides, with the achievement from WDs in the past years in BIM adoption in various aspects such as design and construction, digital fabrication, asset management, pilot projects in making BIM model contractually binding, capacity building, etc., as well as WDs' assurance on the quality of BIM models through regular BIM audit in design and construction stage, we consider that the charting of BIM adoption effectiveness in public works projects by monitoring the BIM KPI system is no longer required. However, the WDs are encouraged to monitor the BIM adoption effectiveness on a regular basis, and share their valuable findings to DEVB, as appropriate.

Common Data Collaboration Platform for BIM (BIM CDCP)

25. With a view to further enhancing the effective use of BIM, the adoption of BIM CDCP in the workflow helps ensure that the BIM model so developed can serve as a single source of truth for collaboration throughout the whole project life cycle. Therefore, WDs should adopt BIM CDCP in delivering the capital works projects with BIM adoption and WDs should consider to use open BIM approach in project collaboration except individual circumstances. Moreover, WDs are required to formulate roadmap for establishing their departmental BIM CDCP so as to facilitate information exchange and sharing of BIM data within the departments as well as information exchange amongst departmental BIM CDCPs and the Government BIM Data Repository.

BIM Software

26. Specific brand names and models of BIM software shall not be stated in tender specifications of consultancy agreements and works tenders. Notwithstanding considerations on compatibility, product makes and models should not be specified. WDs shall ensure that tender specifications must be performance and function based to align with the software-neutral policy. WDs should accord priority to consider to adopt open BIM strategy in different project stages.

Production of Two-Dimensional Drawings

27. The use of 2D drawings should be minimized throughout the whole project life cycle. In case 2D drawings are needed in circumstances such as preparation of statutory submission drawings, tender drawings, shop drawings, etc., the 2D drawings shall be generated from the 3D BIM model in BIM projects. WDs and their engaged consultants/contractors shall cease producing 2D drawings by other platforms if those drawings can be generated from the 3D BIM model.

BIM Capacity Building

28. It is our aim that project teams should have the necessary BIM knowledge/skills to manage the BIM adoption and collaboration in the projects and not to fully rely on BIM consultants/sub-consultants or contractors/sub-contractors. In this connection, we have arranged trainees of DEVB's Graduate Training Scheme to take BIM manager courses accredited by the CIC. In-service professional and technical staff of the project teams should take suitable BIM training courses for capacity building. Moreover, all professional staff in WDs managing capital works projects are required to take BIM viewer training courses.

BIM Requirements for Consultants and Contractors

29. To cater for cases where small consultant or contractor firms may not be very well equipped with BIM expertise, provisions will be stipulated in the agreement or contract allowing the consultant or contractor to engage a BIM sub-consultant or sub-contractor to assist them. The agreement or contract shall also contain terms requiring the consultant or contractor to train up a number of their staff members and their sub-consultant/sub-contractor's staff members. Sample provisions for the training requirements are enclosed in **Annex 2** for reference.

Construction Innovation and Technology Fund (CITF)

30. The Government launched the CITF in October 2018, which provides financial assistance to the local construction industry on, among others, BIM training and procurement of BIM software and hardware for experiential use and project adoption of BIM technology. WDs should encourage their engaged consultants/contractors and sub-consultants/sub-contractors to apply for the CITF.

Information Security of Project Data

31. Nowadays, many functions such as real-time collaboration of design and workflows of BIM software would need to be processed by means of public cloud services. In this connection, WDs are reminded to adhere and follow the relevant Government practice guide(s) and/or circular(s) including the Baseline IT Security Policy [S17] and IT Security Guidelines [G3] published by the Digital Policy Office in respect of the adoption of public cloud services.

Enquiries

32. Enquiries on this Circular should be addressed to Chief Assistant Secretary (Works) 4.

(Ricky C K LAU)
Permanent Secretary for Development (Works)

Annex 1

BIM Uses

1. Works Departments shall adopt the stipulated mandatory BIM uses in respective stages of a project. Works Departments may adopt the optional BIM uses when necessary.

	BIM Use	**Investigation, Feasibility and Planning**	**Design**	**Construction**
1	Design Authoring	M[h]	M	M
2	Design Reviews	M[h]	M	M
3	Existing Conditions Modelling	M[i]	M	M
4	Site Analysis	M[i]	M	
5	3D Coordination		M	M
6	Cost Estimation	O	M[a]	M[b]
7	Engineering Analysis		M[l]	M[l]
8	Facility Energy Analysis		M[o]	M[o]
9	Sustainability Evaluation	O	M[j]	M[j]
10	Space Programming	O	M[c]	
11	Phase Planning (4D Modelling)		M[d]	M
12	Digital Fabrication		M[k]	M[e]
13	Site Utilization Planning			M[f]
14	3D Control and Planning			M[m]
15	As-Built Modelling			M
16	Project Systems Analysis			O
17	Maintenance Scheduling			M[g]
18	Space Management and Tracking			O
19	Asset Management			M[n]
20	Drawing Generation (Drawing Production)		M	M

Legend:
M – Mandatory BIM Use for the mentioned stage, including that carried forward from previous stage.
O – Optional BIM Use

Notes:

a. Mandatory for project cost budgeting, project cost control and cost evaluation on design options, etc. at design stage as far as practicable.

b. Mandatory for project cost control, cost evaluation on variation of works, cash flow/spending analysis, etc. at construction stage as far as practicable.

c. Mandatory for checking client spatial requirements such as compliance with the approved schedule of accommodations, reference plot ratio for building projects and site coverage of greenery for building projects, or other spatial requirements relevant to building/civil projects as considered appropriate.

d. Mandatory for the construction activities with very high to extreme risk level identified from the Systematic Risk Management (SRM) according to ETWB TC(W) No. 6/2005 or other activities as considered appropriate at design stage.

e. Mandatory for digitalizing the construction details in the BIM model for mass customized components such as metal cladding, acoustic panels, building façade panels, ceiling panels, acoustic barriers, metal structural members, etc. which are of large quantities and variety in dimensions, shapes, geometries, etc. and modular construction units[5].

f. Mandatory for the construction activities with very high to extreme risk level identified from the SRM according to ETWB TC(W) No. 6/2005 or other activities as considered appropriate at construction stage.

g. Mandatory for providing maintenance attributes for facility structures, fabrics and equipment in the as-built models as considered appropriate.

h. Mandatory for developing/reviewing digital 3D design scheme for a new construction project after TFS has been approved by the WB of DEVB.

i. Mandatory for collecting sufficient and necessary existing site conditions as far as practicable to develop the design scheme and conduct the site analysis for new construction projects.

j. Mandatory for building projects which aim to obtain the Gold or above rating of "BEAM Plus NB 2.0" certification with credit(s) for "BIM Integration".

k. Mandatory for modular construction units[5] including those for MiC, DfMA, MiMEP as appropriate.

l. Mandatory for conducting at least one engineering analysis which may be related to structural, lighting, solar and shading, airflow, energy, acoustic, thermal, mechanical, people movement, hydraulic, etc. as appropriate in building projects.

m. Mandatory for project requiring Digital Works Supervision System that digital setting-

[5] Modular construction units refer to construction units which are modularized in the design, integrated with all construction components/elements as far as practical, constructed in either off-site or on-site prefabrication yards and then delivered to the site for installation/fixing.

out, construction checking, etc. as appropriate by means of 3D laser scanners, robotic total stations, etc. shall be adopted as far as practicable.

n. Mandatory for identifying the required data sets and data formats which can be extracted from as-built BIM models for the maintenance agencies' use. Besides, underground utilities (UU) surveys by means of photogrammetry, 3D laser scanning, etc. for all opened-up areas are required so that a project UU BIM model can be provided to the maintenance agencies and LandsD for information sharing.

o. Mandatory for projects which need to carry out energy assessment in accordance with Code of Practice for Energy Efficiency of Building Services Installation.

2. Explanations of each of the above BIM uses shall be referred to the explanation notes below.

Explanation Notes on BIM Uses

1. **Design Authoring**: A process of using BIM software to create and develop a project BIM model and plans, elevations, sections, details, shop drawings and schedules can also be produced by the authoring tools.

2. **Design Review**: A process for stakeholders to view a model or animated walk-throughs of a project, provide feedback and validate various design aspects by means of BIM model viewer, Computer Assisted Virtual Environment (CAVE), immersive lab, etc.

3. **Existing Conditions Modelling**: A process of creating 3D model of the existing site conditions by means of laser scanning, photogrammetry, composition of existing 3D spatial data of the site and other conventional methods.

4. **Site Analysis**: A process in which BIM and/or GIS tools are used to evaluate a site for exploring options or making decisions.

5. **3D Coordination**: A process of identifying conflicts by analysing 3D models of different building/engineering systems. The goal of the coordination process is to eliminate clashes before construction.

6. **Cost Estimation**: Quantities may be extracted from models and used to develop cost estimates for a project.

7. **Engineering Analysis**: A process which uses the BIM model to analyse and assess design options to facilitate the provision of effective engineering solution. Engineering analysis may be related to structural, lighting, solar and shading, airflow, energy, acoustic, thermal, mechanical, people movement, hydraulic, etc. designs.

8. **Facility Energy Analysis**: A process of using a building energy simulation programme with a model to conduct energy assessments of a project design.

9. **Sustainability Evaluation**: A process in which a project model is evaluated based on sustainability criteria from BEAM Plus, LEED or other green building assessment tools.

10. **Space Programming**: A process in which a spatial program is used to efficiently and accurately assess a design layout model in regard to client spatial requirements and statutory requirements. For design stage, some examples for checking client spatial requirements may include compliance with the approved schedule of accommodations, reference plot ratio for building projects and site coverage of greenery for building projects, etc.

11. **Phase Planning (4D Modelling)**: A process of linking a programme to the model which is used to plan the phased occupancy or to show construction sequence and space requirements.

12. **Digital Fabrication**: The use of models to facilitate the fabrication of mass customised components or off-site prefabricated assemblies and the models can also be used for prototyping with 3D printers as part of a design intent review process.

13. **Site Utilisation Planning**: The model shall include permanent and/or temporary facilities on site for all the phases of the construction process. This BIM use is normally worked with Phase Planning to review space planning, site logistics, sequencing requirements, temporary works and safety.

14. **3D Control and Planning (Digital Layout)**: A process of utilising a model to lay out project elements on the site or automate the plant with Global Positioning System (GPS) and machine control.

15. **As-built Modelling**: A process of preparing an accurate record of the physical conditions and assets of a project, e.g. as-built BIM model and asset templates.

16. **Project Systems Analysis**: A process of measuring how a project performs compared to the design specifications, e.g. operation of mechanical systems, energy use, solar gain, lighting performance and airflow pattern with Computational Fluid Dynamics (CFD).

17. **Maintenance Scheduling**: A process for planning and managing the maintenance of a project structure, building fabric and equipment during the operational life of a facility. The data required for facility management shall be collected during the construction stages and input into an as-built BIM model.

18. **Space Management and Tracking**: The as-built BIM model can be used to assess, manage and track spaces and associated resources within a project. A BIM database may be used to analyse the existing use of space and perform transition planning.

19. **Asset Management**: A process of linking an as-built model database to an organised asset management system, which can be used to maintain and operate the facility and its assets. To achieve this, project teams and maintenance agencies should agree on a standard practice for handover of as-built BIM models, which contain the essential AIR to facilitate effective asset management.

20. **Drawing Generation (Drawing Production)**: A process of producing tender drawings and shop drawings as far as practicable by BIM models, which are used as single-source-of-truth.

Annex 2

Organisation, Training and Sub-contracting Requirements

BIM Team Structure

The Consultant/Contractor* shall propose and establish a BIM team that is appropriate for the scale and complexity of the Assignment/Contract*, highlighting key roles and responsibilities of each position, within [14]# calendar days after commencement of Assignment/Contract*. The team shall be led by a BIM Team Leader who holds a key position in the Consultant/Contractor's* project team structure. The BIM team shall include sufficient and technically competent resources in order to complete all BIM tasks and deliverables specified in the Assignment/Contract*. Notwithstanding, the BIM team shall comprise at least [3]# personnel well trained in relevant disciplines. These personnel shall have qualifications as follows:

(a) BIM Team Leader shall be a CIC-Certified BIM Manager (CCBM) with effect from 1 July 2021 for all technical & fee proposals of consultancy agreements or construction works tenders invited on or after 1 January 2021

(b) The BIM Coordinator shall be a CIC-Certified BIM Coordinator (CCBC) or CIC-Certified BIM Coordinator (Associate) and with at least half of the BIM Coordinators attaining the qualification of CCBC in the BIM team, for all technical & fee proposals of consultancy agreements or construction works tenders invited on or after 1 January 2024

The BIM Team Leader shall be responsible for the overall BIM management and process controls. The BIM Team Leader shall delegate BIM Coordinator(s) for handling BIM tasks such as BIM modelling, collaborate information exchange amongst related stakeholders and maintain a drawing/information register to record the information to be incorporated in the model(s).

For any proposed staff movement or change in the BIM team, the Consultant/Contractor* shall provide a CV of the replacement personnel together with evidence of equivalent BIM competency to the

Director/Engineer/Supervising Officer* within [7]# calendar days for approval.

BIM Sub-Consultant/Sub-Contractor*

If the Consultant/Contractor* does not have the necessary expertise, the Consultant/Contractor* shall engage a sub-consultant/sub-contractor* with suitable expertise for the performance of BIM related tasks. If the Consultant/Contractor* intends to or is required to subcontract the BIM works to a BIM sub-consultant/sub-contractor*, the Consultant/Contractor* shall obtain approval from the Director/Engineer/Supervising Officer* before formal engagement and shall indicate this clearly in the project team structure. The positions of the staff members from the BIM sub-consultant/sub-contractor* shall also be indicated clearly in the BIM team organisation structure.

BIM Training Requirements

The Consultant/Contractor* is required to nominate his staff or sub-consultant/sub-contractor*'s staff to attend, within [6]# months from the commencement of the Assignment/Contract*, suitable BIM skill training courses under the pre-approved list of the CITF managed by the CIC and ensure their successful completion of the attended training courses:

- []# staff members for the Consultant/Contractor* and
- []# staff members for the engaged sub-consultant(s)/sub-contractor(s).

* Delete as appropriate

\# The number is for reference only and should be suitably determined by the WD according to the nature, scale, complexity, mode of project delivery, number of consultant/contractor/sub-consultant/sub-contractor involved, etc. of the project.

Annex 3

Requirements on Contractually Binding of BIM Models

1. The policy will apply to capital works projects with project estimates more than HK$30 Million.

2. For construction works tenders with BIM adoption to be invited on or after 1 April 2025, the design BIM models shall form part of tender information and shall be contractually binding. The following lists the parts of BIM models to be contractually binding or for reference:

> *"The parts of BIM models of the proposed works corresponding to the information on the 2-dimensional tender drawings in the tender shall be contractually binding, while MEP installations*, existing site conditions and attributes involving proprietary products, etc., (details as specified in Section 3a.1.2 of the standard tender clauses in Annex 4) will serve as reference."*

3. The standard tender clauses to cope with the implementation of contractual BIM are listed in **Annex 4**.

4. Notwithstanding the requirement in item 2 above, WDs could make discretion to contractually bind the specified information in BIM models including MEP installation, existing site conditions and attributes involving proprietary products, with due consideration to the certainty of information and beneficial effect to the project delivery.

5. WDs at D2 level or above may exempt the requirement of contractually binding of BIM models for projects with little design technical content when tendering, such as paving and painting works, slope maintenance works, greening works, maintenance / improvement works under term contract, Design-Build contract and Design-Build-Operate contract, etc.

* MEP includes renewable energy systems, internet of things infrastructure, air conditioning, refrigeration and mechanical ventilation installation, electrical installation, fire service installation, broadcast reception installation, burglar alarm and security installation, lift, escalator and passenger conveyor installation, catering equipment installation, plumbing installation, drainage installation, swimming pool water treatment installation, mechanical installation, liquefied petroleum gas installation and fountain installation, as defined in the General Specification for Building Services Installation in Government Buildings of the HKSAR, and electronic installations.

Annex 4

Standard Tender Provisions for Contractually Binding of BIM Models

Scope **1.1 Documents included under the Scope provided by the *Client***	1.1.1 The Scope provided by the *Client* comprises: (a) all clauses and provisions herein; (b) the Preambles to the Specifications, the Specifications, and the Drawings as more particularly described in Section 3 below; (b1) the information contained in the Building Information Modeling Models ("**BIM Models**"), and any modifications of such information as approved by the *Project Manager*, forming part of the Scope as particularly described in Section 3a.1 below (the "**BIM Contents**"); (c) all annexures and attachments to (a),(b) and (b1) above; and (d) the Client's Requirement.
Scope **3a Client's BIM Models**	
3a.1 BIM Models	3a.1.1 Subject to Section 3a.1.2, the information contained in the **BIM Models** as listed in Appendix PS.[X] forms part of the Scope **<u>if and only if</u>** : (a) the information contained in the BIM Models corresponds to the information shown on the Drawings as listed in Appendix PS.A of the PS; and (b) the information contained in the BIM Models are compatible with, and can be opened and viewed in the [native file format / open file format] ***(* see guidance note below)*** as specified in Appendix PS.[X]. All other information contained in the BIM Models, including those specified in Sections 3a.1.2 below ("**Reference BIM Contents**") shall be for reference only without any contractual force and shall not form part of the Scope. ***[* Guidance note: the project team shall determine whether the native file format or open BIM file format shall be contractually binding in the tender and revise Section 3a.1.1 (b) and PS.[X] accordingly.*** ***If the project team considers the native file format to be contractually binding, the open file format should also be included in the tender for contractor's reference, and vice versa.]***

3a.1.2 The following Reference BIM Contents shall **not** form part of the Scope:

(a) All information contained in the BIM Models regarding Mechanical, Electrical and Plumbing (MEP) and related works in [native file format / open file format] which include BIM Files No. [N5 / O5] to [N7 / O7] ***(internal note: see guidance note below)*** as listed in Appendix PS.[X] of the PS.

(b) All information contained in the BIM Models obtained from others which include BIM Files No. [N8 / O8] ***(internal note: see guidance note below)*** as listed in Appendix PS.[X] of the PS.

(c) All information contained in the BIM Models in [open file format/ native file format] including BIM Files No. [O1 / N1] to [O8 / N8] ***(internal note: see guidance note below)*** as listed in Appendix PS.[X] of the PS.

(d) The following information contained in the BIM Models, even as shown in the corresponding Drawings:

(i) *Contractor*'s Design items
(ii) windows;
(iii) louvers;
(iv) doors;
(v) ironmongeries;
(vi) sanitary fitments; and
(vii) finishes.

[Guidance Note: Project teams are required to add, omit and modify the elements listed above according to the actual circumstances of the particular project.]

(e) The information contained in the BIM Models associated with proprietary brand (unless already specified on the Drawings), including but not limited to:

(i) brand;
(ii) manufacturer country;

	(iii) manufacturer name; (iv) product code; (v) product group; and (vi) website. ***[* Guidance note: the project team shall determine whether the native file format or open BIM file format shall be contractually binding in the tender and revise Section 3a.1.1 (b) and PS.[X] accordingly.*** ***If the project team considers the native file format to be contractually binding, the open file format should also be included in the tender for contractor's reference, and vice versa.]***
	3a.1.3 The *Client* is not liable for the accuracy of the Reference BIM Contents and is not liable for any loss or damages whatsoever arising from, out of or in connection with the Reference BIM Contents. The *Contractor* acknowledges and is deemed to have acknowledged any risks and consequences resulting from the use of, or reliance upon, the Reference BIM Contents.
	3a.1.4 No clash or discrepancy identified within the BIM Contents and Reference BIM Contents shall constitute a compensation event.
Scope **6.1** **Constraints on Providing the Works**	Constraints on how the Contractor is to Provide the Works are described in the GS, the PS, the Drawings and the BIM Contents.
Scope **10.1 Test and inspection**	10.1.1 The *Contractor* carries out, facilitates or assists the carrying out of the tests as stipulated in the contract, including but not limited to those specified in the GS, the PS, the Drawings and the BIM Contents.

Scope 17.3 Computer-aided-drafting (CAD) standard for works projects [***NOTE:*** *Not applicable if BIM technology is used, DEVB TC(W) No. 2/2021 refers*]	CAD drawings are prepared conforming to the CAD Standard for Works Project version 1.03.00 (or later versions as agreed between the *Client* and the *Contractor* from time to time) as posted on the Development Bureau's web site **https://www.devb.gov.hk/filemanager/en/content_203/cswp%20v1.03.00.pdf** Drawings which are generated from BIM Models need not follow CSWP if it is technically impracticable.
Scope 19.1 Discrepancies	Notwithstanding the provision under NEC Clause 17.1, in the event of any discrepancy between other parts of the Scope and the BIM Contents, other parts of the Scope shall take precedence over the BIM Contents.
ACC A1	Unless otherwise specified, terms and definitions used in these additional conditions of contract shall be the same as those used in the conditions of contract. In the contract: "BIM Models" has the meaning assigned to it in Clause 1.1.1(b1) of the Scope "BIM Contents" has the meaning assigned to it in Clause 1.1.1(b1) of the Scope
ACC IV:8 (NEC ECC HK) Intellectual Property Rights	(4) Upon the issue of the certificate of Completion of the works, or after termination, abandonment or breach of the contract, the *Contractor* is deemed to have granted to the *Client*, its authorised users and the subsequent owners and occupiers of the works free of all fees a transferable, non-exclusive, worldwide, perpetual and irrevocable licence (carrying the right to grant sub-licenses) to utilize, use and copy the *Contractor*'s design, the resultant works of such design, "as constructed" drawings, the BIM Models and other drawings and documents (including maintenance manuals) provided by the *Contractor* in connection with the construction of the works and/or the subsequent alteration, extension and maintenance thereof and for any purpose connected with construction, use, maintenance, alteration or demolition of the works (unless otherwise stated in the Scope) and for other purpose as stated in the Scope and the contract. If different

	certificates of Completion have been issued for different sections or parts of the works pursuant to NEC Clause 30.2, the expression "certificate of Completion", for the purpose of this sub-clause, means the last of such certificates. (5) To the extent that legal and beneficial ownership of any Intellectual Property Rights in the *Contractor*'s design, the resultant works of such design, "as constructed" drawings, BIM Models and other drawings and documents (including maintenance manual) provided by the *Contractor* in connection with the Contractor's design is vested in anyone other than the *Contractor*, the *Contractor* procures at its own cost and expense that the relevant legal and beneficial owner grants a licence together with an indemnity to the *Client*, its authorised users and the subsequent owners and occupiers of the works upon the same terms mutatis mutandis as those set out in sub-clauses (4) and (8) of this clause respectively.

Appendix PS.[X]

BIM Models

(1) BIM Models are listed in this Appendix PS.[X] of the PS. The *Contractor* shall refer to Section 3a.1 of the Scope on the use of the BIM Contents.

(2) The soft copies of the above BIM Models included in the Electronic Dissemination Package (EDP) are listed as follows: -

(A) Models in native file format ("**BIM Files**") ***(internal note: see guidance note below)***

No.	File name	Description	Revision
N1	XXXX-XXX-XX-XX-AR_ARC-ST.rvt	Architectural Design	0
N2	XXXX-XXX-XX-XX-AR_FAC-ST.rvt	Façade Design	0
N3	XXXX-XXX-XX-XX-ST_STR-ST.rvt	Structural Design	0
N4	XXXX-XXX-XX-XX-AR_LAN-ST.rvt	Landscape Design	0
N5	XXXXX-XXX-XX-XX-BS_FS-ST.rvt	BS (F.S.) Installation	0
N6	XXXXX-XXX-XX-XX-BS_AC-ST.rvt	BS (MVAC) Installation	0
N7	XXXXX-XXX-XX-XX-BS_UU-ST.rvt	BS (Underground Utility) Installation	0
N8	XXXXX-XXX-XX-XX-ZZ-CM_E.rvt	Existing Site Model	0

(B) Model in open file format ("**BIM Files**") ***(internal note: see guidance note below)***

	<table><tr><th>No.</th><th>File name</th><th>Description</th><th>Revision</th></tr><tr><td>O1</td><td>XXXX-XXX-XX-XX-AR_ARC-ST.ifc</td><td>Architectural Design</td><td>0</td></tr><tr><td>O2</td><td>XXXX-XXX-XX-XX-AR_FAC-ST.ifc</td><td>Façade Design</td><td>0</td></tr><tr><td>O3</td><td>XXXX-XXX-XX-XX-ST_STR-ST.ifc</td><td>Structural Design</td><td>0</td></tr><tr><td>O4</td><td>XXXX-XXX-XX-XX-AR_LAN-ST.ifc</td><td>Landscape Design</td><td>0</td></tr><tr><td>O5</td><td>XXXX-XXX-XX-XX-BS_AC-ST.ifc</td><td>BS (MVAC) Installation</td><td>0</td></tr><tr><td>O6</td><td>XXXX-XXX -XX-XX-BS_FS-ST.ifc</td><td>BS (F.S.) Installation</td><td>0</td></tr><tr><td>O7</td><td>XXXX-XXX -XX-XX-BS_UU-ST.ifc</td><td>BS (Underground Utility) Installation</td><td>0</td></tr><tr><td>O8</td><td>XXXXX-XXX-XX-XX-ZZ-CM_E.ifc</td><td>Existing Site Model</td><td>0</td></tr></table> ***[Guidance note: the BIM files name and description are for project officers' reference only and they shall be edited to suit the project.]***
NTT C24 **BIM Models provided by the Client**	(1) Tenderer's attention is drawn to Clause 19.1 of the Scope, in the event of any discrepancy between other parts of the Scope and BIM Contents, other parts of the Scope shall take precedence over BIM Contents. (2) Tenderers shall note that the BIM Contents Provisions are adopted for this contract. Tenderer's attention is drawn to Section 3a of the Scope and that the information contained in the BIM Models as listed in the Appendix PS.[X] of the PS are provided for tender purpose. Only the BIM Contents particularly described in Section 3a.1 shall form part of the Scope. All other information shall be for reference only without any contractual force and shall not form part of the Scope.

	(3) Tenderers shall note that the *Client* is not liable for the accuracy of the Reference BIM Contents. The *Client* does not accept any liability and responsibility for loss or damages whatsoever arising out of or in connection with the Reference BIM Contents. Tenderers shall acknowledge and shall deem to have acknowledged any risks and consequences resulting from the use of, or reliance upon, the Reference BIM Contents. (4) Tenderers shall note that no clash or discrepancy identified within the BIM Models or between the BIM Contents and other parts of the Scope shall constitute a compensation event.
GCT 2 – Documents issued	(c) BIM Models under Appendix PS.[X] of the Scope.
GCT 19 - Copyright	(1) The documents, plans, drawings, BIM Models or other materials forming part of the tender documents shall only be used by a tenderer or any person authorized or licensed by the tenderer for the purpose of preparing its tender. All other rights in the aforesaid materials are reserved by the relevant copyright owners. The tenderer shall be liable to the Client for breach of the foregoing by any such person as if the breach were committed by the tenderer.
SCOPE ANNEX 1 – PREAMBLES TO THE SPECIFICATIONS	Employer 1.1 References to the "Employer" in the General Specification (GS), the Particular Specification (PS), the Drawings and the Building Information Modeling Models (BIM Models), or any other documents they refer to are construed to mean the "Client" as identified in the Contract Data Part one.
	Contractor 2.1 References to the "Contractor" in the GS, the PS, the Drawings and the BIM Contents, or any other documents they refer to are construed to mean the Contractor" as identified in the Contract Data Part one.
	Engineer and Engineer's Representative 3.1 References to the "Engineer" and the "Engineer's Representative" in the GS, the PS, the Drawings and the BIM Contents, or any other

	documents they refer to are construed Representative to mean the "Project Manager" or the "Supervisor" as appropriate based on the general understanding, with reference to the conditions of contract, that the Project Manager is responsible for managing the contract on behalf of the Client, and it deals with time, money, changes to the Scope and duties other than those to be carried out by the Supervisor under the contract, whereas the Supervisor's duty is to ensure that the Contractor provides the works in accordance with this contract. In the event that the Contractor is in doubt of any matters that relates to this division of the roles, the Contractor refers it to the Project Manager who decides the matter accordingly.
	Language 5.1 Notwithstanding that the NEC ECC HK Edition is generally drafted in the present tense, the GS, the PS, the Scope, the Drawings and the BIM Contents, or any other documents they refer to, may employ the more "traditional" drafting language of obligation. This difference in style of the language adopted in different parts of this contract does not of itself affect the interpretation of this contract, and the terms of this contract should be read in the context in which they appear. In the event that the Contractor is in doubt of any matters that relate to the issue of drafting language, the Contractor refers it to the Project Manager who decides the matter accordingly. Any clarification or decision of the Project Manager relating to the issue of drafting language does not constitute any compensation event.
Preambles to the Bill of Quantities [Applicable to Options B and D]	General directions 2. Items shown in the bills of the bill of quantities are items of work. In this bill of quantities and the Method of Measurement, the headings, sub-headings, item descriptions and the matters listed against the relevant marginal headings "Item coverage" in Part V of the Method of Measurement and the Particular Preambles identify the work covered by the respective items, but such descriptions or identifications may not be exhaustive. Subject to Section 19.1 of the Scope, the exact nature and extent of an item of work must be ascertained by reference to the Scope which includes Drawings, Specification, BIM Contents and to the conditions of contract,

	as not all requirements may be stated in the item description or its item coverage. Furthermore, whilst the item description and item coverage may make specific reference to certain parts of the Scope such as Drawings, BIM Contents and/or Specification, the item of work described is deemed to include for all requirements shown in the Scope pertaining to that item of work irrespective of whether or not all related parts of the Scope are stated in the item description or item coverage. The item description of an item of work is deemed to include an item coverage for the carrying out of all work, services and actions necessary or desirable for the satisfactory completion of such item of work in accordance with the contract.
	Measurement 3. Subject to Section 19.1 of the Scope, the measurement of work is computed net from the Drawings and BIM Contents, unless stated otherwise in the Method of Measurement.
	Discrepancy between the units of measurement given in the Method of Measurement and the bills 12. Subject to Section 19.1 of the Scope, where there is discrepancy between the unit in the Method of Measurement and the unit for an item of work in the bills within the bill of quantities, the unit in the bill shall prevail, unless, by reference to the quantity in the bills and the nature of the item of work as identified by the Specification, Drawings, BIM Contents, measurement rules, item description and item coverage in the Method of Measurement, the Project Manager determines otherwise.
	PARTICULAR PREAMBLES 9. Add the following after paragraph 4 of Part IV : 4A. The item coverage of the relevant item as stated in the Method of Measurement and/or these Preambles to the bill of quantities is not meant to be a comprehensive or exhaustive list covering all costs in relation to work of that item. The rate inserted in the bill of quantities is deemed to be inclusive of all necessary cost and fee for the work of that item as indicated

	in the Specification and shown on the Drawings and BIM Contents, subject to Section 19.1 of the Scope. Any item missed out from the item coverage shall not be measured unless it is expressly required to be measured under other provisions in the Method of Measurement.
Preambles to the Activity Schedule [Applicable to Options A and C]	General directions 3. Activities shown in the schedules of the *activity schedule* are activities of work, services and actions. In the *activity schedule*, the headings, sub-headings and activity descriptions identify the work, services and actions covered by the respective activities, but such descriptions may not be exhaustive. The exact nature and extent of an activity must be ascertained by reference to the Scope which includes Drawings, BIM Contents and Specifications and the *conditions of contract* as not all requirements may be stated in the activity description, and this Preambles. Furthermore, whilst the activity description may make specific reference to certain parts of the Scope such as Drawings, BIM Contents and/or Specifications, the activity described is deemed to include for all requirements shown in the Scope pertaining to that activity irrespective of whether or not all related parts of the Scope are stated in the activity description. The activity description of an activity should be deemed to cover for the carrying out of all work, services and actions necessary or desirable for the satisfactory completion of such activity in accordance with the contract.
	5. The quality and quantity of work included in the rate or price inserted against an activity is deemed to be that which is shown in the Scope including Drawings, BIM Contents and Specifications. The *Contractor* is deemed to have ascertained the exact quantities before submitting its tender.