

Building Information Modelling (BIM)

The use of Building Information Modelling (BIM) is a relatively new and innovative approach to building design and construction. The Buildings Department (BD) encourages authorized persons (AP), registered structural engineers (RSE) and registered geotechnical engineers (RGE) to consider adopting BIM in their building projects under the Buildings Ordinance (BO). This practice note provides general guidelines on using BIM to prepare statutory plan submissions to facilitate plan processing by BD.

BIM Submissions

2. There is a wide range of applications of BIM on new building developments and alteration and addition works which are considered useful to facilitate BD in processing plan submissions. Some examples of BIM applications are given in **Appendix A**.

3. When BIM is used in the preparation of general building plans, AP should refer to Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers ADM-19, follow the “Guidelines for using Building Information Modelling in General Building Plans Submission” and make reference to the sample drawings and BIM models promulgated by BD which can be downloaded from BD website at www.bd.gov.hk.

4. When BIM is used in the preparation of other statutory plans, AP/RSE/RGE should follow the “Guidelines for using Building Information Modelling in Statutory Plan Submissions (other than General Building Plan)” and make reference to the sample drawings, BIM objects/models and templates jointly promulgated by the Construction Industry Council (CIC) and BD which can be downloaded from BD website at www.bd.gov.hk.

5. Where applicable, AP/RSE/RGE should also make reference to the user guides and other relevant BIM standards that have been developed and published by CIC from time to time. All such information is available in CIC website at www.bim.cic.hk/en/resources/publications.

Using BIM to Prepare Statutory Plan Submissions

6. When BIM is used to prepare statutory plan submissions, the information contained in the BIM files should be identical to the information shown on the prescribed plans. Post-manual editing to the drawings generated from the models of the BIM files for statutory plan submissions should be minimised.

7. While BD will process the approval of plans under the BO based on the information presented on the prescribed plans in paper format or 2-dimensional portable document format, the information contained in the BIM files will be used for checking against the contents of the plans to facilitate scrutiny of the plans in accordance with the requirements of the BO. In case of any discrepancy between the plans and BIM files submitted, the plans shall prevail.

8. To keep pace with the development of BIM in the building industry, BD will, from time to time, review the extent of BIM application with a view to exploring different means to facilitate the processing of plan submissions.

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**Examples of Application of Building Information Modelling (BIM)
to Facilitate Processing Plan Submissions**

Types of Plan Submissions	Building Information to be Illustrated by BIM ¹	
	BIM	Real-time Simulation
General Building Plans	<ul style="list-style-type: none"> ● innovative building design, irregular/twisted building form; ● projecting features on external wall; ● relationship between site profiles/street levels and proposed building; ● area demarcations and calculations; ● arrangement of means of escape and compartmentation; ● compatibility between different types of plans; ● spatial arrangement of building; ● relationship between existing building and proposed alteration and addition (A&A) works. 	<ul style="list-style-type: none"> ● sequence and phasing of various stages² of new building development; ● sequence and phasing of A&A works.
Drainage Plans	<ul style="list-style-type: none"> ● complex drainage systems and/or connections; ● relationship between proposed underground drainage works and foundation works/site formation works, etc; ● compatibility between different types of plans. 	<ul style="list-style-type: none"> ● sequence and phasing of various stages² of new building development; ● sequence and phasing of A&A works.
Superstructure Plans	<ul style="list-style-type: none"> ● material and grade of different structural elements; ● fire resistance rating and concrete cover of different structural elements; ● complex steel structures and/or connections; 	<ul style="list-style-type: none"> ● sequence and phasing of various stages² of new building development; ● sequence and phasing of A&A works.

¹ In addition to the BIM files, AP/RSE/RGE may supplement the submission with a real-time simulation video file in Windows Media Video (wmv) or Audio Video Interleave (avi) format that is supported by Windows Media Player 11 or above to enhance illustration of the proposals.

² Relevant stages of new building development may include demolition, foundation, ELS, site formation, sub-structure and superstructure construction, as the case may be.

Types of Plan Submissions	Building Information to be Illustrated by BIM ¹	
	BIM	Real-time Simulation
	<ul style="list-style-type: none"> ● arrangement of transfer structures and illustration of load path; ● basement structures supporting adjoining ground and/or existing geotechnical features; ● assembly sequence, structural arrangement and/or connection of façade/glass wall/curtain wall/cladding works, etc; ● compatibility between different types of plans; ● relationship between existing structures and proposed A&A works; ● working space, temporary supports and strengthening in A&A works. 	
Foundation Plans	<ul style="list-style-type: none"> ● type and arrangement of foundation, top level and toe level of foundation, level of bearing stratum and allowable bearing capacity of foundation; ● relationship between proposed foundations, sub-structures, ELS works and geological ground profiles, adjoining existing foundations, geotechnical features, sensitive structures, etc; ● compatibility between different types of plans. 	<ul style="list-style-type: none"> ● sequence and phasing of various stages² of new building development; ● top-down construction.
Excavation and Lateral Support (ELS) Plans		
Site Formation Plans	<ul style="list-style-type: none"> ● relationship between site profiles, geological ground profiles, proposed works, adjoining existing foundations, geotechnical features, sensitive structures, etc. 	<ul style="list-style-type: none"> ● sequence and phasing of various stages² of new building development.
Demolition Plans	<ul style="list-style-type: none"> ● complicated demolition sequence; ● final stage of partial demolished structures. 	<ul style="list-style-type: none"> ● sequence and phasing of works, method statements and temporary precautionary measures.

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